The New England
Journal of Medicine

VOLUME 202 JUNE 26, 1930 NUMBER 26

NEW ENGLAND HEALTH INSTITUTE

THE USES AND ABUSES OF ULTRA-VIOLET LIGHT*

BY JOHN W. M. BUNKER, PH.D.†

ULTRA-VIOLET light is still a mystery. It is mysterious partly because it cannot be seen. To the layman the conception of invisible light seems a scientific quibble. To him, light is something which he can see; he does not realize that there are many kinds of light, running all the way from such invisible radiations as are used in radio, through another invisible set of radiations which constitute heat rays, through the narrow band of visible light which we all know can be split up by means of a prism into individual sections of different color, through another band of radiations beyond the visible spectrum which we call ultra-violet, and so on down the scale.

The important feature about light is that, whether it be visible or invisible, it carries energy. Energy is the one thing which any man, woman or child can borrow without security and without any effort to pay it back; it can be secured free. The source of energy for every living thing on the earth is the sun, from whence it travels to the earth in light rays. Some of these light rays are visible; some warm our earthly universe; others, invisible, have a profound influence upon life in various forms. In so far as is known, the only difference between these various divisions of light lies in the frequency with which the pulsations of energy follow each other in a direct line from the sun to the earth. When the time interval between pulsations of energy is great, we say that light has a long wave-length and a low frequency, and when the impulses follow each other rapidly, we say that the light has a short wave-length and a high frequency. Each pulsation travels at the same rate of speed whether it follows closely after the preceding pulsation or whether it comes at a longer time interval after it. In other words, the speed of light is a constant and it is a speed which is difficult to appreciate, namely, 186,000 miles per second.

When an impulse of light energy strikes upon the skin of an animal, one of two things happens: either it bounces off, in which case we say it is reflected; or else it sinks in, in which case we say the energy is absorbed. Whether light will be reflected or absorbed depends upon the arrangement of molecules, atoms, ions and other aggregates in the substance upon which the light energy impinges.

There is a theory which plausibly explains, in a broad way, why certain substances absorb energy. This is the theory of resonance. The theory of resonance is best illustrated by a metaphor.

Imagine an old-fashioned grandfather clock. It has a pendulum suspended on a long wire. The pendulum being of a definite weight and the wire of a definite length, when the pendulum is set to rocking back and forth (in other words, when it starts to vibrate), it will gradually attain a definite speed and will swing back and forth so many times per minute day in and day out, under the application of force from the clockwork spring. As a child, it always delighted me to be able to get at a pendulum of a clock and interfere with its smooth, methodical swinging. Children and scientists like to investigate things that are happening in a regular way and see if they can upset conditions. Everyone knows that if he pushes the pendulum incautiously, he will upset its rate of vibration and start it to bouncing around irregularly, and he appreciates, or at least he finds out by experiment, that if he cautiously applies a push to the pendulum in time with the regular rate of speed, he can make it swing wider and cover a greater amplitude of vibration than was its habit before interfered with.

This is an example of the principle of resonance applied. By applying energy in time with the natural period of vibration of the pendulum, the amplitude of this vibration could be increased and the regular beat of the pendulum would not otherwise be interfered with. If, however, energy were applied not in phase with the natural period of vibration, the whole system would be upset. Or, to put it another way, here is a vibrating element, a pendulum, having a natural frequency of vibration, and force applied to it from an outside source does not disturb that frequency but merely increases the strength of the vibration, if the application of force is exactly in time with the original period of vibration. In this case the energy

*Read at the New England Health Institute, Boston, April 17, 1930.

†Bunker—Professor of Biochemistry and Physiology, Massachusetts Institute of Technology. For record and address of author see "This Week's Issue", page 1268.

applied from the outside is absorbed without disturbing the original behavior of the system. That is because the application of energy is in resonance with the natural exhibition of vibratory activity.

Now as light comes to a surface, let us say the skin of the human animal, it comes in impulses which are spaced at definite time intervals. If these time intervals coincide with a natural frequency of vibration of molecular structure, or if they coincide with some multiple of this natural frequency time, the energy will be smoothly absorbed and the activity of the protoplasmic structure will be increased. On the other hand, those rays of light of which the impulses arrive at some time interval which does not smoothly fit in with the existing state of affairs will not have a similar smooth accelerating effect upon the natural activity of the structure of the protoplasm.

This brief sketch may indicate to you one way, at least, in which one can account for the absorption of certain types of light by the skin with a resulting useful chemical action, and in another case the reflection of light, or the failure to instigate useful chemical action. For, of course, if energy is absorbed, it must be used in some fashion. Energy cannot remain bottled up forever. In the body, energy which is absorbed in various ways is exhibited in the form of heat, motion, gland activity, nervous activity or something of that sort. A large share of the absorbed energy which we obtain from food and sunshine for the purposes of living is exhibited as chemical energy, with the production of useful substances in the body.

It has been proved beyond doubt that certain rays of light in the region which we call ultraviolet arrive at such a frequency that when they impinge upon the skin, certain chemical transformations take place, some of which, at least, are beneficial to health.

On the basis of this observation there has rapidly developed what might be called a fad for irradiating the skin. With science at his command, and impatient of cloudy days when no sunshine is available for irradiating purposes, man has developed a sort of artificial sunlight. He has found that by the use of electricity and certain devices for making light, he can produce a light which is rich in ultra-violet rays, and since ultra-violet light produced from artificial sources differs in no respect from ultraviolet rays of sunshine, he has said to himself, "here I have an artificial sun; if it is good for me to get out in the sunshine, it ought to be good for me to get in the light of my quartz mercury vapor lamp, or in the light from my therapeutic carbon arc". But the light from the lamp does not exactly duplicate sunlight. It is stronger than sunlight in certain portions, and weaker in others.

Physicians and laymen alike are more or less in the dark as regards a complete understanding of ultra-violet light. A mysterious action comes from its application to the skin. No one knows exactly what happens, and as is always the case when dealing with something which is not completely understood, curiosity is aroused, and curiosity leads to experimentation.

Now that there are available to anyone who has the purchase price a number of different sources of artificial ultra-violet illumination, experimentation is becoming more and more widespread and very likely more and more irrational. We do not know what ultra-violet light will do to us, but we hope that it will do us good. Just as a child playing with matches is apt to burn its fingers, so it is equally likely that the layman playing with ultra-violet light is likely to be burned, both literally and figuratively.

The human body has a natural protective mechanism against sunburn. And the protective mechanism is graded so that it builds up protection about as fast as is ordinarily needed. Artificial sources of ultra-violet light, being so much more intense in certain bands of ultraviolet than is sunlight by the time it reaches us on this earth, tend to produce sunburn more quickly than does sunshine even in the middle of summer. This is less true of certain therapeutic carbons. We have not yet developed a quick protection against burning from intense ultra-violet light and the result is that the incautious use of lamps will surely produce a burned skin, which may be painful even if no further harm is done. The eyes are sensitive to strong radiation in the ultra-violet zone and the person who exposes the eyes to the light from a quartz mercury vapor lamp or an unshielded carbon arc will surely have sore and swollen lids unless the exposure be so brief that it can be described almost as momentary. Whenever one is in range of such a light source he should wear glasses. Ordinary glass is efficient in absorbing most of the ultra-violet which can come from present-day lamps and since the rays are absorbed, they cannot penetrate to the cornea or the lids of the eye.

The penetration of ultra-violet light into solid material is generally very slight. Fused quartz is transparent to most of these rays; certain types of glass specially prepared are more or less transparent; ordinary window glass is very, very opaque to ultra-violet; probably the deepest penetration into the skin under any ordinary conditions will be a distance of 2 millimeters for certain bands of light, at the intensity with which they are usually applied.

Chemical activities in the body directly due to the energy received from light sources may be expected, therefore, to take place in the superficial layers of the skin. Chemical substances produced here in response to this photo-chemical stimulation may be expected to diffuse into the body fluids, into the lymph, into the blood stream, and to be distributed as hormones are distributed throughout the body, possibly being picked from the blood stream at certain points where their activity is especially notice-

able. It must be admitted that this explanation of the chemical result from absorbed ultra-violet light energy is rather speculative.

It has been demonstrated beyond any doubt that irradiation of the skin by ultra-violet light in general tends to prevent or to cure the disease condition known as rickets. This beneficial effect of ultra-violet light in rickets is to be expected only if the diet of the subject is correct in respect to supplying a proper balance, as well as an adequate quantity, of calcium and phosphorus. Light alone cannot prevent failure of the body properly to calcify growing bones; the chemical elements needed for making bone must also be present. On the other hand, a body which contains calcium and phosphorus in sufficient supply and in proper proportion will not develop normally unless there is present the substances which we characterize as vitamin D, and then only if there be not too much of the vitamin.

It is equally well-known that a substance akin to solid alcohol, a substance known as ergosterol, associated generally with cholesterol in plants and animals, may be regarded as, in one sense, a precursor of vitamin D. When ergosterol is irradiated for a suitable length of time with the proper bands of ultra-violet light of correct intensity, the ergosterol is subject to certain chemical changes as exhibited by its changed absorption spectrum. The irradiated ergosterol is vitamin D, and if it be administered to a rachitic animal, a favorable therapeutic action follows, provided, of course, that the mineral elements, calcium and phosphorus, are present, On the other hand, it is known that the application of too much energy in the form of ultra-violet light to ergosterol results in a destruction of vitamin D, after its formation. The beneficial effects of irradiating the skin of a rachitic animal with ultra-violet light are supposedly due to a similar formation of irradiated ergosterol, which is a constituent of the outer coat of such animals.

This seems to be the one clear-cut scientifically proved experiment, substantiating a beneficial application of ultra-violet light to health.

Many authorities agree that sub-acute rickets may be very widely present amongst the population, young and old. If this be the case, the general application of a wise amount of suitably controlled ultra-violet light should be expected to have a beneficial result upon the health of the people. The catch in this theory comes in the phrase "wise application of suitably controlled ultra-violet light". We do not know exactly what is the wisest dosage of ultra-violet irradiation. We do know, however, that the whole band of ultra-violet radiation furnished by different types of light sources may be quite different in one case from another. To say that one has taken an ultra-violet light bath for so many seconds or so many minutes means nothing exact. The distance of the lamp from the surface irradiated, the amount of electrical energy which was transformed into ultra-violet light, the intensity at the various individual bands within the zone of ultra-violet, all these things vary tremendously in different cases and have a profound effect upon the amount of energy which is absorbed.

In general, probably the method employed to determine the allowable dose of irradiation is some method which measures the degree of dermatitis brought about by light burn upon the skin. Obviously, to submit one's skin to so much energy absorption that a painful burn results is not only uncomfortable, but logically would appear to be unwise. Exposures of mice show that repeated irradiations of the skin by ultra-violet light for many months may result in over-growths in cells of the skin. We know that, if given a chance, pigment will be laid down in the cells of the skin and it is assumed that this pigment acts as a protection against too much energy absorption. Whether the protection results in a change of the form of energy which is subsequently passed on to the body, or whether it blocks the entrance of energy is a matter of amicable dispute but, nevertheless, is a point which has not been settled. Moreover, the natural defenses of the body, if they be defenses, which bring about pigmentation of the skin subsequent to irradiation are designed to protect the body against the particular intensities of different bands of ultra-violet which are likely to come to us from the sunshine. Inasmuch as quartz lamps supply ultra-violet of different intensities in various bands, there is likely to be an incidence of energy upon the skin subjected to irradiation from such a source, of a particular intensity and frequency, against which adequate protection is not an inherent part of the body mechanism. If ultra-violet light is dispersed through a quartz prism so that it impinges upon the skin in separate bands, certain of these bands will burn more than others. Pigmentation will take place in certain zones more promptly and more adequately than in others. Certain bands of ultra-violet light undoubtedly tend to burn more severely than others and assuredly there is less protection against some than there is against others. This leaves a problematical question as regards the natural reaction of the body to ultra-violet light from artificial sources. Until artificial ultra-violet light is so harnessed that it simulates quite closely the distribution of energy and of wave length of the ultra-violet light from sunshine, the two sources of irradiation cannot be used interchangeably without suitable precautions.

Light therapy is useful in treating certain forms of tuberculosis. A recent study of this subject indicates an uncertainty in the mind of the observer as to whether the beneficial effect of the light in treating surgical tuberculosis is due to the visible part of the spectrum, to

the ultra-violet part, to a portion of the ultra-violet, or to a combination. Certainly there seems to be a sort of agreement (whether well founded remains to be seen) that the far ultra-violet (that portion of ultra-violet which is of very short wave-length) can be dispensed with in the treatment of tuberculosis. We have come to consider that the far ultra-violet,—which is useful in killing bacteria directly exposed to it, which has little penetration of the skin, and which brings about sunburn,—is not necessarily the part which is useful in therapy of any sort. By process of elimination we have come to regard the near ultra-violet, or the long wave-length ultra-violet as constituting the therapeutic band.

Unfortunately, the experimental work upon which these conclusions have been based has not definitely made a comparison between different bands of ultra-violet of equal intensity. It is very difficult to secure isolated bands of ultra-violet light of equal intensity. We do not know whether a half-time irradiation with double intensity is the equal of a whole-time irradiation with half intensity. These matters are the subject of investigation at the present time.

Henrichs, working with small organisms, seems to have demonstrated beyond doubt that, whereas small doses of ultra-violet irradiation stimulate the organism, larger doses depress. The tendency after depression seems to be for metabolism to swing back to normal and beyond; the tendency after stimulation seems to swing back to normal and possibly below. Rats, in my own laboratory, which have been over-irradiated, have consistently gained less than other rats, receiving a correct anti-rachitic dose.

That there is a feeling of well-being after one has taken a short exposure to ultra-violet irradiation seems to be generally the case. How much this feeling of stimulation is psychological and how much is physiological cannot yet definitely be said. It is the hope of those who are irradiated that they are improving their general metabolism and improving their resistance to general infection, but it cannot be definitely said that this beneficial result is attained. It may be true, but at present we must render the Scotch verdict of "not proven".

Moreover, there is said to exist in some individuals a type of metabolism which results in the presence of definite, if minute, quantities of hematoporphyrin, a substance which can be derived from blood and very similar to a substance which can be derived from chlorophyll of green leaves. Hematoporphyrin is one of those interesting products which suggests the relation between the hemoglobin of the blood and the chlorophyll of green leaves; its behavior in the fluids of an animal suggests, further, the peculiar ability of chlorophyll in green leaves to absorb radiant energy from light in the process of photosynthesis, in that the animal containing hematoporphyrin in its fluids, when subjected to irradiation, develops an intense itching of the skin sometimes with painful eruptions. There are other conditions reported in the literature which seem to render a subject especially sensitive toward light treatments.

The use of ultra-violet light on patients in advanced stages of pulmonary tuberculosis is deemed harmful, the result being, unfortunately, not dissimilar to that following an injection of tuberculin. Some of the unfavorable reactions in persons of irregular metabolism indicate that there is an effect upon various endocrine glands subsequent to irradiation.

The survey made in April, 1929, by a committee of the Medical Society of the County of New York reports unfavorable results from irradiation from 15 pediatrists, 14 orthopedic surgeons, 15 dermatologists and 14 physical therapists and clinicians. These unfortunate results were of all kinds. This committee is of the unanimous opinion that with so many injurious effects already on record, the prevailing practice of uncontrolled self-treatment by the layman is undesirable and the committee has been requested by the Commissioner of Health of New York City to suggest suitable steps to prevent indiscriminate application of ultra-violet lamps. We of the field of public health should be cautious in all things about which there is not exact knowledge, and this implies wariness in the use of, and in recommending to the general public the use of, ultra-violet light.

The medical profession should be expected to know more about beneficial irradiation than the general public, but the question is one of scientific facts and the facts have not yet been completely established. It would seem that advice in the matter of suitable employment of ultra-violet light upon human beings should be restricted to the few who are becoming expert in the field through study and through experience. The idea of a general tonic imparted by light, nature's source of energy for the body, is alluring. The fact that we cannot see this particular kind of light plays upon the natural human interest in magic. Magic, however, must always be based upon ignorance. The clever feats of the artist in legerdemain arouse little interest after we learn how the trick is performed.

The body of truths which will ultimately explain the effect of light upon the human organism is rapidly being increased by careful experimentation all over the world. It would seem to be obviously the part of wisdom to await further proved data before rushing in enthusiastically to employ this fascinating light on ourselves or upon others except with great caution. It is no panacea, it is no cure-all, no elixir of life, no rejuvenator.

Ultra-violet light is energy, and this energy at times is very powerful. This type of energy can, we know, be absorbed by the body. The laws of the behavior of energy in this universe apply to the behavior of energy in the body. It cannot be lost, it cannot be created, but most of it

must be transformed, because, obviously, there is a limit to its storage. What the transformations may be, we do not know. To play with ultra-violet light is to play with a possibly dangerous agency. Extreme caution is needed by everyone. Careful observations and careful measurements, with conclusions drawn only after a protracted period of time, are required before we can reasonably deduce what the ultimate effects may be. It is my firm belief that the miscellaneous use of ultra-violet light upon the human body is to be deplored and should not be encouraged.

THE PREVENTION AND TREATMENT OF GONORRHEA*

BY P. S. PELOUZE, M.D.†

I HAVE been asked to address you upon what, unquestionably, is the most unpoetic theme in all of medicine,—one abounding only in the low lights of human existence, utterly devoid of things that elevate or attract. So outcast is it that a society that prides itself upon a breadth of thought that derides the old narrowness and calls it Victorian, recoils from even the mention of its name and almost denies it the public press. And, because of these facts and some others, the disease has stalked through the ages and gathered its harvest in ignorance and neglect. It has lain its blighting hand upon the innocent and the guilty, the high and the low. It has reached into the cradle and denied the light to countless numbers of new-born. It has painted a vast picture of human misery that, unless we awake, will travel on and on through the years gathering its ever-increasing horde of victims as a monument to the things we have not done.

The subject given me for discussion is the prevention and treatment of this great plague and, as you knew that before you came to this meeting, I take it that you have an interest in this topic that transcends mock-modesty and that I may talk to you frankly without fear of offending your finer sensibilities. Such a belief makes it easier for me to approach the subject, to touch on angles that, otherwise, I should try to dress in more guarded terms and thereby cause my remarks to lose much of their force.

To discuss this question freely before a mixed assembly is in no sense an easy task. If one speaks directly to one part of his audience, he is likely to lose the attention of the other. Consequently, I am going to say what I think to both the medical and non-medical mind and crave the indulgence of both while I drift from one to the other. Also, I ask the charity of both, one for the other, for many of the things I shall have to say must, of necessity, savor of criticism. They, however, are not said in a holier-than-thou vein for I frankly admit that in the old days of my general practice I was guilty of many of the things that today I criticize. In fact, the knowledge that I was remiss gives me the more courage to speak boldly for their correction, for with real truth I can say "we" have, or have not, done them instead of saying "you".

To such an audience it would seem unnecessary to talk about the prevalence of this disease, but, for fear that some of you may be half-hearted about the matter, I am going to annoy you with a few interesting figures. First, a few from what you call staid, somnolent Philadelphia, figures that even may suggest that the term "City of Brotherly Love" may not be sufficiently inclusive.

In his recent health survey of my city Dr. Haven Emerson felt safe in estimating that we developed at least 159,000 new cases of the venereal diseases annually. Dr. Emerson found that approximately 45,800 of these cases of venereal disease were treated by recognized medical agencies and 114,000 were under no medical supervision whatever. He found that 33.3% of our druggists were bold enough to admit that they performed the illegal act of treating such patients, that 23.2% refused to commit themselves regarding the matter and that 43.5% said they referred such patients to clinics or physicians. Considering that approximately 114,000 cases applied to druggists and that only 45,800 were treated by medical agencies, one could be pardoned for thinking that some of the druggists were more timid and less truthful than some others.

These investigators did another very interesting and highly illuminating thing. They inquired of one hundred young men, taken at random in pool rooms and like places, what they would do if they contracted a venereal disease, and obtained the following answers: 42% would consult a druggist; 24% a physician; 16% a clinic; 4% would use a home remedy and 14% did not know what they would do. Surely there is much food for thought in this.

Parran and Usilton[1] estimate that on any day there are 474,000 cases of venereal diseases under medical care in this country. If we apply to this estimate the knowledge gained in the Philadelphia survey, about half of these, or 237,000, are cases of gonorrhea. If, as seems to be the case in Philadelphia, the druggists of the country treat two and a half times as many as the medical agencies, the druggists have 1,185,000 cases of both diseases on any one day. And, as Dr. Emerson's figures show that almost five-sixths of those applying to druggists for the treatment of venereal diseases are afflicted with gonorrhea, we find approximately 987,500 cases of gonorrhea in this group, or a total of 1,224,-

*Read before the New England Health Institute, April 17, 1930.

†Pelouze—Associate in Urology and Genitourinary Surgeon to the University of Pennsylvania. For record and address of author see "This Week's Issue", page 1268.

500 in the hands of both the druggists and the medical agencies on any one day. If we allow a conservative turnover of four per year, we find that the annual number of cases of gonorrhea in the country approximates 4,498,000 and then we are left to surmise how many the charlatans treat and how many get no treatment at all.

Or, should the women be particularly interested, they might contemplate the honest but disquieting fact that at least every second man they meet has had, has, or will have gonorrhea, and the men will have to get what comfort they can from the equally evident fact that no one knows or ever shall know how many of the women have had, have, or will have the disease.

From this one can draw some conclusions of great value in our present discussion. The first has to do with the small number of cases of syphilis encountered by the druggist. It would be interesting if one had data of ten years ago upon this subject. Undoubtedly the figures would be nearer equal for the two diseases. One can draw only one conclusion, viz.: the laity has learned of the dangers of syphilis through the great publicity given it and on the first suspicion of this disease seeks its court of last resort, the physician, rather than trust the druggist.

With gonorrhea the story is different. They have heard so much about the mildness of the disease in the male, about those individuals who boast that they would rather have an attack of gonorrhea than a bad cold in the head, that they more often take the disease lightly and are willing to be advised by their court of first resort, the druggist.

It is probable that the druggist's gonorrheal patients are practically all below a certain level of intelligence, but this does not mean that they necessarily belong to a fixed stratum of society. The disease is preponderantly a disease of youth and early adolescence, when intelligence often is in the bud and judgment a season off.

What do these figures mean to us? In the first place, they indicate that there are many more cases of gonorrhea than syphilis, and they point out that far more than two out of every three individuals thus afflicted do not have medical supervision but are cared for, if we may call it "cared for", by those whom the physician must trust to put up his prescriptions, to stand between himself and his patient,—treated by individuals not in any sense trained in clinical medicine. Surely the commercial instinct is playing society a sorry trick! Hundreds of thousands of cases of the most individualistic of all diseases are illegally treated by those who have almost no knowledge of the disease they are handling. Countless individuals who are taught the finer points of compounding drugs, members of a profession of dignity, are willing, for such a small price, to play in such a game. Is there any wonder that there are so many cases of the disease?

One only has to think of the clinical course of gonorrhea to sense the enormity of such a situation. Its most constant feature is its more or less prolonged periods of latency that have fooled millions into the idea they were cured,—a latency wherein there often are no symptoms of which the patient is conscious, a stage in which he feels perfectly safe in resuming his former activities, a period in which most transferences of infection take place. Obviously such a state of affairs is a social menace and just as obviously it is ours, either by kindly persuasion or more forceful methods if need be, to correct it, if we would reduce the incidence of infection. Unquestionably it is the greatest single factor favoring the spread of gonorrhea.

Why do so many individuals having this disease fail to consult a physician? There are a number of things entering into a complete answer to this question but, for my profession, the most important phase of the answer rests in the fact that our own house is not in such good order in so far as gonorrhea is concerned. By and large, the disease has got little of our interest and almost none of our fancy. An enormous percentage of physicians who really treat it are too proud to admit the fact. Perhaps a greater percentage treat it in a haphazard method in which no effort is made to keep the patient interested in his condition until there is even fair reason to believe he is cured. Further, much of the supposed knowledge regarding the disease is not even good pseudoscience. An unfortunate amount of confusion has clung for years about the subject, confusion that even a little serious thought should have dissipated. But outcasts get little serious consideration, as a rule, and gonorrhea has been no exception. Society has looked down on it, medicine has cared little about it, treatment often has been of a sort hardly likely to instill confidence in its victims, interest in them has been largely wanting, misinformation has been the order of the day, confidence has been lost and the result is exactly as should be expected. Is there any mystery about the fact that gonorrhea ranks next in frequency to the common cold?

What of our dispensaries for the treatment of this individualistic disease? The briefest way to answer this is, that, with but a painfully small number of exceptions throughout the country, they have three faults for every virtue. Usually they occupy quarters in our hospitals that no one else wants; they are poorly manned and there is no possibility for privacy of treatment so that large numbers of patients are herded together; and they are rarely in good standing with the governing boards of the hospitals.

I think you will grant that if these statements are true, neither society at large nor the profession of medicine can find much room for pride in the picture. From much study of the entire subject I can assure you that conditions have not been exaggerated. I deplore them and you deplore them. I do not recount them to you to be

unkindly critical but with the hope that you shall see the facts as they really are, for no disease problem of today cries more loudly for correction. None is more worthy of sincere effort and none has more to correct.

What can we do about it? Unquestionably our first need is thoroughly to realize where we are, to cease making alibis for our position, to map out a course of procedure, to get very busy and to stay busy. Primarily, two things stand out beyond all of the others, viz.:—public education and better medical care for those afflicted. Without both, either must fail.

Unquestionably a way must be found to make and keep the public social disease minded. What if society does quibble about the word "gonorrhea?" It accepts the term "social diseases" and it knows that syphilis is not the only one. It has the right to know about the ravages of gonorrhea and there is no great difficulty in imparting this information in an inoffensive way if we talk the disease and not morals. It would be a simple matter to prepare data that would be neither suggestive nor offensive, facts to which the most meticulous could not object.

Most of the educational efforts of the past have been campaigns of awfulness to the point of gross exaggeration and have savored more of moral guidance than of disease prevention. There is no need for exaggeration. The truthful picture is sufficiently arresting. There is no point in deceiving the male by telling him of the great havoc the disease will create in him, when the truth is that gently treated, it rarely does, and that it eventually will get well if he behaves himself and lets it alone. Let us convince him that it is a decidedly demoralizing thing for him to have and a loathsome thing for him to transmit. Let us show him what the disease does to the female, for here is the really unfortunate side of the question. Let us convey this knowledge to our young women, for they need it more than the male. Let us teach them that it is not a disease of filth but a disease that affects every stratum of society, a disease that in the adult is transmitted almost solely through sex contacts, that, in the unmarried, revels in promiscuity and poaches not on chastity. They should know that in them it is not a self-limited disease but often an incurable one that carries in its train the most unfortunate of consequences.

For such an educational campaign there never has been a time like the present. The decided freedom of the press, the increased frankness in general speech, the saner view of things sexual, the curiosity of the laity about all things medical, the conviction of the medical profession that the public should be educated to view these things more sensibly, the large army of interested social workers, and the opening of radio facilities to health talks, all make it the ideal time to strike.

Turning to the medical aspects of our campaign of correction, we find ourselves faced with some extremely difficult barriers to surmount. First, there must be a general stimulation of interest in the disease. It must be said in fairness that, during the last two years, this interest has been greater than at any time in the last thirty, except, perhaps, for a short period during and after the World War. But, at its best, it is woefully insufficient. We are faced by one of the commonest diseases of mankind, which is only just emerging from a confusion that has enshrouded it for generations, that has advanced but little beyond the point where Ernest Finger left it thirty years ago, that has only just started to elicit enough interest in us to tempt us into research work upon it. Though there have been millions of cases, we are still at sea regarding many phases of the question. We have no uniform ideas regarding its clinical course. We do not know how, or why, our patients recover. We are divided into two great camps on our basic ideas of treatment.

We find that what we have assumed was knowledge often is not even good guesswork and it is so, not because the truth cannot be discovered, but because, as a body, we have not seriously tried to unearth it. Untold amounts of money have been, and are being, expended upon research in syphilis and almost none has been spent upon research in gonorrhea. And this, not because the money cannot be got but because no one has tried to get it.

Aside from the great need that we learn more about the disease than we now know, looms the more immediate problem of applying what we do know to a better advantage than is being done. Considering that most of the cases are being cared for by the druggist, there is a crying urgency that we improve our clinical facilities for the care of these unfortunates. Not only must we better the physical equipment of our dispensaries to the end that privacy may be obtained, but we must find a way to remunerate the younger man in these dispensaries. The day of long apprenticeships in medicine has passed and our younger men cannot, and will not, day after day, do the routine work that such a dispensary entails unless it in some way brings an economic return. It, therefore, is important that our hospital boards give earnest consideration to these phases of the question if progress is to be made in relieving mankind of even a part of this terrible burden. There must be engendered a more kindly attitude on the part of all concerned toward these unfortunates to the end that their coöperation be obtained and held until the disease is cured. Without it, no treatment is good treatment and no preventive measures can meet with success.

The investigation of and, in fact the obliteration of all unscrupulous methods and practitioners that prey upon these unfortunates is a matter of the greatest importance. Few, if any, of us realize to what extent the victims of this disease are exploited by charlatans and fakirs.

Such, so-called, medical institutions usually are owned by non-residents of the cities in which they are located and most of them have no purpose other than extracting funds for which no adequate return is made. They constitute what is one of our greatest social blots. They have no valid excuse for being.

Thus you see there are both social and medical factors, not in any sense easy to overcome, that have been instrumental in making of gonorrhea the most poorly understood and the most wretchedly treated of all diseases,—factors in the surmounting of which it is necessary that we hold the larger vision of human endeavor that rises above the sordid, that thinks not of pride or sin, but sees only the facts that these things exist and it is ours to find a way to lighten this terrible burden. We must view it as a preventable disease that affects an enormous percentage of the good and the not-so-good, a disease regarding which we have only a fraction of the knowledge that we should have, and rather easily could have. No physician is too good to treat it and no mind is too pure to hear about it.

Having made out quite a case against society at large, and the medical profession in particular, both of whom we love, let us see what this disease is that has created such havoc. So much that really is not so has been said about it that I am sure it would be both interesting and instructive to the lay portion of our audience to strip it down to the foundation, for it carries too much needless superstructure that misleads.

To begin with, the disease is caused by a germ which has but one natural habitat, human mucous membranes. It, perhaps, has more firmly fixed habits than any other disease germ. Outside of the body it is one of the most delicate of pathogenic bacteria, being immediately killed by drying or contact with soapy water. So susceptible is it to the latter that any of the germs on the hands can be immediately killed by the use of a good lather. It likewise is killed by drying or by immersion in water for any length of time, though it may survive in moist pus for a far longer period.

The mode of contagion is solely by the actual deposit of the gonococcus on a mucous membrane. In infant girls this occurs almost entirely through the carelessness of nurses and parents and is due to the mechanical transference of bacteria in moist pus to the genitalia by means of recently infected linen or hands. In the adult the disease is practically always contracted as the result of sexual contact with one having the disease. Accidental infection occurs with extreme rarity, if at all. With the exception of the infant eye (for the adult eye rarely is susceptible), the disease essentially is one of the mucous membranes of the genito-urinary tract. The gonococcus finds its way beneath the surface and sets up an inflammation wherein varying amounts of pus are thrown out. The disease spreads along the membrane mainly by continuity of surface and, as the gonococcus has a special predilection for certain types of mucous membrane, it creates most havoc and remains longest in those places furnishing this type of tissue.

Upon rare occasions the gonococcus gets free in the blood stream and causes conditions ranging from the mildest joint inflammations to those of such severity that they cause permanent deformity or from the mildest febrile condition to a fatal blood infection.

In the male the urogenital infection is a self-limited disease which will get well eventually if the patient receives no treatment whatever, providing he avoids known and easily avoidable things that prevent him from mustering up the required curative processes. He will get well much more quickly and safely, however, under careful medical supervision.

In the female the picture is just the reverse. In them it is one of the most unfortunate of human maladies. It wreaks its vengeance upon the essentially generative portion of the urogenital tract. It occasions conditions of the most disabling sort. It accounts for much of the invalidism and semi-invalidism of women and in many other ways paints a picture of human misery and misfortune that no pen could exaggerate. Here it justly could be called a "slaughter of the innocents," for it ruins health, it slaughters hopes, it devastates happiness, at times it kills, and most of its victims have been guilty of no moral obliquity. It is here that society at large and we, in particular, receive our challenge.

From the standpoint of preventive medicine the disease presents many features peculiarly its own and singularly calculated to favor its spread. After varying periods of activity the marked evidences of the disease subside to a point of quiescence wherein the patient often is lulled into the belief that cure has been accomplished only to find, after some indiscretion, and commonly the infection of another, that such was not the case. It is because of this disease habit and the fact that such indiscretions favor chronicity that every patient infected should have frequent contacts with an interested physician who never for a moment should forget that most of his success depends upon the patient's coöperation. It is for lack of such care and guidance that drug store treatment scores as a social menace. The victim is left as the sole judge of conduct and cure and his victims help to form the endless chain of infected.

What of the treatment of this disease? Obviously it is not appropriate that I tire you with a discussion of matters of technic of so purely medical a nature. For those interested in this phase of the subject I, fortunately, have said elsewhere and in a form easily to be understood, just what I think. But there are certain facts that stand out as points that should have far wider circulation and that surely should be known by all who are in any way interested in the problem. That I may conserve your time

and show my appreciation for your patience, I shall, in this particular, confine myself to brief, dogmatic statements, realizing that some of them may and at times do have their exceptions.

1. There is no true immunity to gonococcal infection in human beings. The disease can be contracted repeatedly.
2. The disease is practically 100% curable in the male.
3. Cure in the female usually is difficult and at times seems impossible.
4. Individuals seemingly free from evidences of the disease, frequently have it and commonly transmit it.
5. Females more commonly become symptomless carriers of gonococci than do males.
6. The diagnosis of latent gonorrhea in both sexes frequently is very difficult; at times it is impossible.
7. The disease rarely lies dormant for as long as a year in the male and it may persist for years in the female.
8. Much of what parades as chronic gonorrhea really is not gonorrhea and often has nothing to do with that disease.
9. Unquestionably the disease is overcome by the patient's own curative processes.
10. The physician's part is to respect these curative functions, try to help the patient engender them and to guide him away from those things known to check curative response.
11. It is rare for a patient not having frequent contacts with an interested physician to go through the disease without having easily avoidable and often disabling complications.
12. The best treatments of the day are not ideal from the standpoint of speed in recovering, but they are of such a nature that the careful male who coöperates with the interested physician usually is restored to normal and is no further menace to anyone.
13. There is more room for improvement in the treatment of the female than in the male and there are more reasons why she does not respond so well to the treatments she does get.
14. The treatment of both is largely empirical and is in crying need of much careful study. No subject in medicine offers a better background to magnify good work than does this, for we really know little about it.

There are so many different aspects of this subject one could touch upon that there seems no limit. I purposely have refrained from taking up your time with the more obvious means of venereal disease control, such as the use of prophylaxis, the obliteration of prostitution, the reporting of the infected, and other measures about which you perhaps know more than I. Rather have I chosen to point out many things, both professional and lay, that must be corrected if we are to meet with even a fair measure of the success that easily is to be had.

The disease is preventable, but the present social trends are taking it into homes of a type that it seldom reached twenty years ago. In increasing numbers the young women of that stratum of society that we like to feel is the backbone of the nation are becoming its victims. A comparison of the sources of infection of the male twenty years ago and today will show a most appalling change. Then, at least 80% of infections were to be attributed to the prostitute and today it is questionable if she has to shoulder the burden of even 10% of the male infections. Such a shift should stir even the most somnolent to a feverish activity.

To those of you who are physicians I have spoken frankly. To those of you who are mainly in educational fields I voice the plea that you do not allow one student to escape your influence without hearing just what this disease is doing. Such teaching can be kept very readily from that seemingly dreaded topic of sex. One only has to stress results and he will find the youthful mind has reached back and completed the picture for him.

To the health workers, whether in the hospitals or in other fields, there opens up the possibility of aiding just as greatly in the fight. You can help in making the requisite hospital changes and you can go far in worthwhile public education. By a thoughtful, kindly and tactful attitude toward the afflicted, you can save thousands from impending infection.

By working honestly and earnestly together we can relieve humanity of a large share of this great hidden menace which today is afflicting more persons than ever have been, or ever will be, the victims of cancer, tuberculosis and syphilis combined, at any one time. I, therefore, close by asking you to do what you can to aid in the control of this disease that fitly might be called, "The Fourth Great Plague".

REFERENCE

1 Parran, Thomas and Usilton, L. J.: The extent of the problem of gonorrhea and syphilis in the United States. J. Social Hyg. 16:31, January 1930.

MENTAL HYGIENE IN A PUBLIC HEALTH PROGRAM*

BY JAMES L. MC CARTNEY, M.D.†

PHYSICAL hygiene is very closely interwoven with mental hygiene, which has as its objective the greater happiness and efficiency of the individual, and thus the mental betterment of the race. The boundary line between physical hygiene and mental hygiene is hypothetical, although it was not until the last two decades that

*Read at the New England Health Institute, Boston, April 18, 1930.

†McCartney—Chief, Division of Mental Hygiene, Connecticut State Department of Health. For record and address of author see "This Week's Issue", page 1268.

mental hygiene has been given an important place in the general campaign for the improvement and well-being of humanity. In the last analysis, the body is subservient to the mind, and will be ennobled or degraded according to the type of mind to which it gives habitat. The meteoric rise of the Mental Hygiene Movement, in the last twenty years is witness to its paramount importance in any public health program.

Every constructive movement has had the justification of an urgent need and this necessity has ever been the stimulus for practical and effective action. Unless these overwhelming needs are satisfied, human nature inevitably degenerates, and human aspirations are lost in chaos. Thus humanitarians, criminologists and health workers the world over are realizing the dire necessity for the improvement of the general health of individuals and races. There never has been a more true and striking exigency than that which is to be found in the present necessity for medical hygiene.

There is fascination in statistics, and if carefully studied, they depict certain facts; these facts, in turn, show a real danger, which is more thrilling than the fictitious perils found in many detective stories. Statistics from our hospitals in the United States show that there are in our hospitals more persons who are mentally sick than there are physically sick. The rate of admission to these hospitals amounts to 75,000 annually. One out of every twenty-one persons in the general populace has been, or will be at some time in his life, in a mental institution, if not given proper mental hygiene to forestall the mental illness. This is even more graphic when we realize that one out of every seven families shows a history of insanity. Thus we find that out of the 24,000,000 children now in our schools, at least 1,000,000 are destined to be blighted by mental disease, unless mental hygiene is applied. It is, however, encouraging to note that at least one-half the cases of mental disease are preventable. Nevertheless, prevention does not consist in building more hospitals, nor does it imply the treatment of already well-established and chronic diseases of the mind. Its program calls for the erection of protective measures many years before mental disease may be expected to develop.

Just as physical hygiene finds its most promising field amongst children, so human behavior, or personality, is most easily influenced in the right direction during its most formative period, that is, during childhood. Yet, it is difficult to define clearly what is meant by personality, human behavior or conduct, or whatever you wish to call it. Perhaps, it can be best defined as the difference between an animal and a human being, or rather, it is the difference between animals and most human beings. Defectives who lack intellectual endowment can scarcely be credited with the possession of personality. Much controversy, therefore, may be avoided by speaking of personality as the sum total of the great number of sensory-motor reactions correlated by the mind, or the voluntary responses of the individual to the environment.

All will agree that the functions of the mind are not separate or distinct entities but part of the correlated whole. The old psychology taught that the mind was composed of a number of cubby holes, and each one was supposed to hold a special faculty, such as feeling, thinking, volition, etc., each one of which was quite distinct from the other. This conception has become inadequate and so has been discarded.

Almost everyone knows that the body is made up of a great number of organs, each one of which has a certain function,—the kidneys to secrete urine; the lungs to carry on respiration; the heart to force blood through the vessels; and the stomach and intestines to digest and absorb food, and that the function of each of these organs must be timed in response to certain conditions and in proper relation to the other organs of the body, or it does not efficiently serve its purpose. The stomach must secrete its juices when food is introduced; the active brain must be supplied with an increased amount of blood; the kidneys and the skin must act harmoniously to excrete their waste products and the respirations must increase on physical exertion. It is a function of the nervous system so to organize the activities of the organs of the body that they will be properly adjusted in relation to one another. This mechanism of pseudo-intelligent correlation rests in the vegetative nervous system, the simple reflex arc, the spinal cord and medulla, but under certain conditions may show the effect of the higher centers.

The outer layers of the cortex of the brain are thought to be the origin of thinking, and their functioning is interpreted as mind, as these functions regulate and control the actions of the individual as a whole. These functions learn how to react, and so are known as conditioned responses, but in order that these responses may be learned, the cerebral cortex must necessarily be brought into relation with the environment through the sense organ. If the person is to become an intelligent individual, these responses must be coördinated, and the resulting conduct is the sign of personality.

In order that this conduct may be normal, of course, the brain and the general nervous system of the individual must be healthy; otherwise, the adjustment of the individual to his environment cannot take place efficiently. If the individual is to properly adjust, it is necessary that he be able to profit from his experiences in the environment. The results of these experiences must be organized, associated and brought into relation with previous experiences, and the person must learn to transform these experiences into appropriate actions. As in physical processes, mental processes having

once occurred, tend to recur in the same way when the same conditions are repeated.

Although it is important to take these fundamental facts into account, if an attempt to prevent, or at least, to curb the incidence of nervous and mental disorder is to be considered, several other factors of prime importance must be noted. These are sound heredity, careful protection of the health of the mother during pregnancy, all possible care and skill at the time of delivery of the child, careful and sensible guidance of the child through the first years of life, rational school training, proper supervision during the adolescent years, abstinence from drugs, sexual and alcoholic excesses; avoidance of syphilitic infection and other organic diseases which affect the nervous system; and, of course, a prevention of conflict in general, anywhere in the environment.

Just as the principles of eugenics must be taken into account in the improvement of physical health, so necessarily this must be thought of when considering the possibilities of the inheritance of nervous or mental disorders. Where there is a possibility of hereditary taint, there should be no intermarriage, or certainly no children should be brought into the world from such progenitors. Legally, birth-control advice cannot be given to this type of case in most states, and in Connecticut it is even illegal to practice contraception. Realizing that there are types of mental disease and mental deficiency which have a hereditary tendency, a number of states, including Connecticut, have a law permitting sterilization under certain circumstances. While sterilization is of undoubted value in the prevention of poor mental stock, the procedure can be logically recommended in only a very restricted group.

The health and environment of every prospective mother is a matter of vital importance to the mental hygienist. There has already been sufficient research work done to prove conclusively that the environment of the mother during the time that she is carrying the child definitely affects the child *in utero*. This may be shown by the sudden start that the unborn child gives when a sharp noise is made near the pregnant woman. If this is often repeated, the child, of course, does not get the necessary rest. Incidents in the emotional life of the mother, such as persistent worry, neglect, or other great emotional disturbances, and physical states such as malnutrition, glandular dysfunction and renal disease are found frequently in the prenatal history of children suffering from arrested development and cerebrospinal disorders. It is well to urge upon the prospective mother and her relatives that her whole physical and mental condition while she is carrying the child may have great effect upon the development of her baby.

Some children are born mentally defective, but this does not necessarily mean mental disease, although every case is a mental hygiene problem. Feeblemindedness is a state of retarded mental development due to a number of causes, including heredity, injury at birth, and certain diseases. Feeblemindedness, unless due to some physical condition, is not curable, while, at the other extreme, proper treatment of glandular types show almost miraculous improvement. It must be remembered that certain individuals are judged to be feebleminded because of defects of hearing, vision, etc., which give them the appearance of being slow and backward, while all that is necessary is to correct the physical defect in order to alleviate the erroneous impression.

Feebleminded persons become social problems for the same reasons as other people. Barring bad environment and the lowest stages of feeblemindedness, such as idiocy and imbecility, a feebleminded person who is not afflicted with mental unbalance, or some psychopathic condition, has a fair chance, with the proper kind of training, to get along reasonably well in the community. Even the low-grade defectives can be taught to do certain very simple occupations, much to their own benefit and with the result that it is easier to manage them in institutions. It is also possible to make them, to some extent, self-supporting in this way.

The proper physical care of the child in the first months of life is recognized by all public health workers, but in no less a degree is it important to follow out sensible training and discipline in the early years of life. It is recognized that the early environment makes a very definite imprint on the development of the child, and it may be stated, without dispute, that many of the neuroses and psychoses of later life could be prevented if the child in its early years was guided sensibly with due regard to its emotional development. It does not matter whether the hereditary background be a simple neurasthenic, hysteric or manic depressive personality, the family environment plays a very important rôle. There is a generally accepted opinion that heredity has a very big part in determining many of the mental diseases, but this belief is much too pessimistic in outlook to be accepted, for these predispositions many times can be counteracted, if not nullified, by healthy environment. Every child at birth should be considered potentially normal, although it is important to watch him with greatest care during the early, formative years, as he may show a tendency towards any one of the neuroses or psychoses.

Children are normally imitative and, should they happen to be born to parents of the hysterical type, are likely to imitate the performances of their parents, with the result that they become hysterical themselves. There is little use in instituting any form of treatment unless the hysterical child can be put under the charge, continued over a number of months or years, of an intelligent nurse, teacher or foster-parents,

who will devote themselves to the study of the peculiarities of the child and who will make a serious attempt to influence his behavior along natural, healthy lines.

In recent years special stress has been laid upon the earliest possible recognition of mental abnormality, as early diagnosis usually leads to the necessary steps to prevent mental disease later in life. This is the basic thought underlying the Mental Hygiene Movement. It is the reason for the establishment of Child Guidance Clinics, for careful personality studies, and for much of the social and psychological work that is now being attempted in the family, school, and industry. In all this work the assisting hands of a general medical man and of the public health worker are needed, for these persons do have in mind the physical well-being of the individual and should have, as well, his mental and moral development. They should know not only the child and the youth, but also the parents and their ancestry and they should be willing to avail themselves of such facts as the social worker, psychologist or psychiatrist may provide. They should also be able to keep an open mind towards the many fads that are so prevalent in these days, but they should not be swept under by public enthusiasm.

From the physical side, as mentioned above, conditions may be present in the mother that will definitely affect the personality of the child. Damaging toxic substance may be introduced through the walls of the placenta and a minute injury in the placenta may even allow the passing of a vast number of microörganisms into the child. If syphilis is found in the pregnant woman, she should be given intensive treatment; otherwise the child is likely to be a victim of neurosyphilis. It has been shown that tuberculosis, poliomyelitis, encephalitis and some of the other infectious diseases may be transmitted, or the toxins of the disease transmitted, to the child, causing definite damage to the nervous system, even before he is born. It is, therefore, necessary to carefully protect the mother if the unborn child is to be mentally healthy.

During labor, naturally the mother should receive first consideration, but unfortunately, many times, the physician or nurse does not take sufficient cognizance of the actual injury that may be inflicted upon the child. Often the child's entire life is affected by improper obstetrical methods at the time of delivery, such as prolonged compression of the skull, protracted dry labor and unskilled instrumental delivery; these are responsible for many infantile cerebral lesions, especially the monoplegias and hemiplegias, which may subsequently develop into epilepsy and which might well be prevented. If the public health worker is reminded of the fact that occurrences immediately before and during delivery not only may result in various forms of paralysis but may lead to something that is far worse, such as chronic epilepsy and idiocy, he will realize to the fullest extent the obligations toward the child that is being helped into the world. These results of the so-called birth accidents certainly are avoidable.

In recent years, public health workers have become more and more aware of the fact that many of the diseases of childhood are apt to have neural sequelae. Most common of these are acute anterior poliomyelitis, occurring most frequently in children but often in adults, epidemic cerebrospinal meningitis and epidemic encephalitis, otherwise known as encephalitis lethargica. Since many of these diseases are extremely infectious, it is necessary to isolate all these patients, not only as a preventive against the spread of the disease, but also as a protection against the almost inevitable mental conditions that follow. We will not here go into the details of these diseases except to say that today Mental Hygienists are faced with a very grave problem in the number of postencephalitis cases that are coming to their attention. But it has been found that the postencephalitis syndrome does not necessarily have to be preceded by encephalitis lethargica, as some of the other high fever diseases, such as scarlet fever, often cause much the same "moral" deterioration. It should be emphasized here that the care of the patient suffering from any of these infectious diseases of the central nervous system plays an important part in the prevention or restriction of the sequelae, which are far more disastrous than the actual infection. In all these cases it is important to prolong the period during which the patient is confined to bed until every vestige of the inflammatory process has disappeared, and this should be followed by a very long-controlled convalescence, with proper occupational therapy.

Syphilis as a precursor to nervous and mental disease is of paramount importance when it is realized that up to seventy-three per cent. of all syphilities develop neurosyphilis. Everyone with primary syphilitic disease should be considered potentially neurosyphilitic, and lumbar punctures for diagnostic purposes should be the routine rather than the exception. The prevention of neurosyphilis or general paresis, of course, means the persistent and thorough treatment of the primary lesion. Because the malaria treatment of general paresis has shown such gratifying results, this is not sufficient reason for delay in carrying out thorough treatment before any neurological signs develop. There are a number of distinct hereditary conditions, amongst these being Friedreich's disease, hereditary spastic paralysis, progressive muscular dystrophy, and amaurotic family idiocy. If anything can be done to prevent the development of these disorders, it can be accomplished only by ruling against marriage of individuals coming from families in which one of these diseases has been prevalent. This, of course, necessitates a very careful family study and if the parties involved desire to marry, they should

be sterilized, as inevitably the disease will appear in their progeny. Some of these diseases appear to be accompanied by endocrine disturbances and there is some question at present if immediate endocrinetherapy in new-born children from such families might not prevent the development of the disease later in life. Once the presence of one of these diseases is established, it is necessary to use every effort to counteract the disturbances in normal locomotion and the general use of the limbs which inevitably follow.

There are a number of functional disorders, known as chorea and ties, which, apparently, start on a definite physical basis but become habits. It is, therefore, necessary to stop these conditions before they become established. At least one-fourth of these complaints seen in adults might have been prevented if they had been given thorough treatment in childhood. All sources of irritation should be removed, such as ill-fitting spectacles, irritating scars on the face or on other parts of the body, ill-fitting collars and clothes, hair poorly cut and hanging over the eyes, and any other such conditions. With some of these cases it is necessary also to use painstaking patience in training the patient to overcome these habits.

So-called fainting spells and lapses of consciousness may be the first manifestation of the epilepsies, as may also be the convulsions of early childhood. In no other type of disease is a complete physical examination of greater importance, for although the condition may be of emotional origin, it may be organic, and thus be starting a faulty habit pattern.

Disorders of the internal secretions play an important part amongst the preventable mental diseases. Of late years the physiological functions of the thyroid gland, of the pituitary, of the adrenal, of the pancreas and of the sex glands have been studied so successfully that the use of these glands or extracts of them have acquired distinct therapeutic and prophylactic value. Myxedema, cretinism or idiocy, hypopituitarism, various forms of distorted growth and various sexual abnormalities have been held in check, or have been arrested in their extreme development, by feeding the individual with one or other of these glandular products. It is, therefore, very necessary to determine whether there is an endocrinopathy present in the individual.

There are a number of emotional conditions which call for special attention, such as the obsessions of early childhood, based most often upon some experience of the child which continues to hound him. There are so many individuals of abnormal habits seen in everyday life that the importance of checking such tendencies in early childhood cannot be stressed too strongly. Many physicians and public health workers do not seem to realize the effects of these emotions, for when a patient comes to them stating that he is afflicted with some physical impairment and who in reality is suffering keenly, they often dismiss him with the statement that there is nothing the matter with him. This explains to no small extent the widespread use of cultists, such as chiropractors and others, to whom these discouraged people so often go as a last resort and, getting attention, obtain relief.

Boys and girls of school age, especially beginning with adolescence, are prone to mild mental disorders. Many of them are just "nervous", some are hypochondriacal, and a very considerable number are afflicted with a sense of inferiority, although this is by no means as common as the discussion on the "inferiority complex" would lead one to believe. In all such cases, it is a matter of the utmost importance that the home and the school environment be examined carefully and that the child in his relations to his family and to the other pupils at school be carefully determined. Personality studies will be most helpful, providing the person conducting them shows a proper sense of proportion and does not exaggerate any complaints that are relatively unimportant. It is well to remember that every individual is expected to conform to conventional standards of behavior, and if he cannot be made to conform to these, it would be well to inquire the reason why he is different from the average. In many cases, conditions have to be altered to meet the needs of the particular child, but it is well not to be too indulgent, and not to make too much ado over a slight peculiarity in the behavior of the child. In fact, such a procedure likely would encourage the development of neurosis.

In children and in adults, speech disorders, headaches and insomnia are among the preventable complaints.

Amongst young adults, dementia praecox, and manic depressive psychoses cause more mental illness than any other mental disease, and it appears that, although heredity may be a factor in these two conditions, environment or destructive experiences are the precipitating causes. In the adolescent period, when usually the first great struggle for existence becomes manifest and the question of economic support first presents itself, the individual is apt to subject himself to unusual efforts. It is necessary that he should realize that there are margins of safety and a limit to his endurance, and that he should not attempt more than he is able to accomplish. Not every boy or girl is mentally fit to stand the strain of a college education. Certainly not all those who attempt to enter one or another professional career are fitted for such. If individuals were more carefully directed into the lines of work for which they were mentally and physically fitted, many of them would be prevented later from mental catastrophe.

The problem of the feebleminded, the epileptic, neurotic or psychotic is but one phase of mental hygiene; it is something which affects all

persons. Nothing is more important than the right mental attitude toward life's problems in general. No one can grow up from childhood and live a life of ordinary length without being many times confronted with conflicts, doubts, and problems which tend to make adjustment to life difficult. Some cope with these problems with reasonable success. Others simply cannot find a level and may develop any one of a number of mental abnormalities, or mental kinks and twists which interfere with their happiness and efficiency, and even more with the happiness of those with whom they come in contact. Unfortunately, few have a working knowledge of the rules of mental health. They do not even know that there is a group of specialists in the medical profession equipped by experience and training to help those afflicted with these abnormal mental states. One of the important items in any public health program is to promote, by every educational means possible, better knowledge of mental health, the importance of preventing bad mental habits in children, and knowledge of the facilities for handling such problems in the community.

Mental Hygiene has also a definite relation to the problem of crime, but it is possible here only to make reference to it. There are many persons being put in jail, while there are others being convicted of crime and sent to State penitentiaries, who are mental cases, but have not been recognized as such. Some of the more enlightened States are making careful study of the inmates of the State penal institutions, in order to determine the mental condition of the inmates and, where necessary, are placing the mental cases in proper institutions. While psychiatry is certainly not the entire key to criminality, it does play an important and distinct part. Although this fact is not as yet fully accepted, it is hoped that the time is not far distant when it will no longer be customary to pit one "mental expert" against another in the Court room. Fortunately, some states have a definite committee of psychiatrists to examine offenders when a question of mental disease is raised, and which can scientifically recommend the disposition of these cases.

Among the most ancient problems confronting the human race are those connected with home, marriage and domestic relations. At the present time our ideas on these subjects are undergoing a rapid transition both in America and throughout the world. Ancient views and fixed traditions are giving way before clear thinking. There is a confused difference of opinion as to what should be discarded and what retained. Whatever may be the viewpoint on the subject of marriage and divorce, it is generally accepted that there are far too many divorces for the general good of society. A careful study of divorce statistics, during the last forty years, shows that legal separation is on the rapid increase. In 1887, there were but 5.5 divorces to every 100 marriages; by 1919, this number had increased to 10, and since 1919, this has reached more than 15.

It is not surprising that welfare agencies of every type are looking about for assistance in studying this trend towards wholesale divorce. They have come to the mental hygienist to inquire what, if anything, can be done to better the situation by means of mental hygiene. Experience has shown that mental hygiene is not a panacea for this situation, as it is not for most of the other mental mal-adjustments. In fact the presence of the "mental expert" in the criminal courts has occasionally hindered rather than aided the cause of justice, but, it must be added, this often is due to untrained "experts". There is a great dearth of trained and experienced persons, who are competent to handle the delicate temperament of the would-be divorcee. The harm that inexperienced hands may cause in attempting to cure a mental situation is very great, and may even cause greater difficulty by such mishandling. Overzealous enthusiasts often attempt to do what lies beyond their limitation.

Recently there has been some enlightening research work done on the subject of family relations. It was found that the causes for divorce were, in the approximate order of importance, as follows: temperamental incompatibility; physical dissatisfaction; restraint of personal freedom; ill-health; jealousy; differences over children; economic difficulties; relatives and "everything wrong". All will agree that most of these causes are purely mental mal-adjustments. If, to these items listed, are added undue pride, abject poverty, mental defect, unstable temperament, chronic illness or a combination of these, one can realize some of the mental stresses that impel people to divorce; it is only by the diminution of these persistent annoyances that anything can be done to prevent or lessen divorces. This may need the care of a mental specialist, for the successful mental clinician is able to secure the subject's coöperation and the full and confidential statement of the patient's grievance as no one else can. The mere fact that he has given voice to all his pet worries is often sufficient to set him on the road to a new adjustment, for it is often the pent-up, petty annoyances which gradually lead to a wider and wider rift, eventually ending in the divorce court.

When unmarried youth has been taught the facts of mental hygiene which concern marriage and living together happily, there will be less fear when marriage actually occurs. Somewhere these people must get an understanding of the necessary "give and take" of married life, must reach some conclusion as to the degree of temperamental difference they can permit; must gain some sane and sound views on sex and its relation to a happy marriage; must appreciate the differences of opinion that are likely

to arise over economic difficulties, children, relatives, social and religious affairs. This is one of the problems that mental hygiene is now working on, and which should be given the concern of every public health worker.

It is evident that in any mental hygiene program it is very necessary to study the individual as a whole, socially, physically, intellectually and emotionally. This necessitates therefore, a thoroughly trained psychiatric social worker who can study the environment. This may be a trained nurse who has had experience along this line, who can go into the home or school environment and study the conditions under which the individual lives in order to help the diagnosis of the case or to find what may have to be changed in order to help the person readjust to society. The physician has to make a very careful physical examination in order to determine that there is no physical abnormality or inferiority present. Then the psychologist is necessary in order to determine the inherent intellectual ability of the individual to make such an adjustment, and the psychiatrist, taking the facts as found by the others, and studying the individual from the emotional angle, tries to digest all the material obtained in order to determine whether it is the heredity, the environment or the individual that needs readjustment. Thus, only, can mental hygiene hope to succeed, and, thus it is apparent that no public health program is complete without a very careful mental hygiene program.

"RESEARCH IN STATE HOSPITALS"

By F. H. Sleeper, M.D.

Assistant Superintendent, Worcester State Hospital

At the present time the State of Massachusetts is expending more than $10,000,000 annually for the care of victims of mental disorder. Upwards of 20,000 patients are being cared for in the institutions coming under the direction of the department of mental diseases. These 20,000 individuals must be regarded as essentially non-productive members of society. A rather conservative estimate would place the aggregate annual earning capacity of these patients, if normal mentally, at approximately $12,000,000. The problem of mental disease is not limited to the State of Massachusetts however. According to the compilation of Frederick W. Brown, Director, Department of Information and Statistics, the National Committee for Mental Hygiene, 553 institutions of 8% of the total in this country, were devoted to the care of nervous and mental patients. In these 553 institutions there were, however, 394,268 beds, or 44% of all institution beds. The average number of patients in mental hospitals in 1928 was 369,035, an increase of 19,368 patients over 1927. More than 52% of the patients in all institutions are in hospitals for nervous and mental diseases. One out of every 325 persons was a patient in an institution for nervous and mental disorders. Brown's figures were based on the annual hospital census of the American Medical Association as reported in the *J. A. M. A.* issues of March 30, 1929 and March 24, 1928.

Horatio M. Pollock, Director, Statistical Bureau, New York State Department of Mental Hygiene, in an article in the January 1928 number of *Mental Hygiene*, entitled, "State Institution Population Still Increasing", comments on the marked increase in the population in mental institutions, the rate of increase far exceeding that of the general population. He states that either the number of social deviates is increasing or the people to a greater extent are turning to state institutions for relief. . . . It is clear that the burden of mental disease . . . borne by the state is continually becoming heavier.

From a careful consideration of the above facts, if only from a financial standpoint, disregarding entirely the factor of human suffering, it seems rather obvious that the mental disease problem deserves a tremendous amount of research from every approach that offers hope for a solution to any of the questions which combined go to make up the entire problem.—*Extract from Bulletin Massachusetts Department of Mental Diseases.*

WORK OF NATIONAL LEPROSARIUM DURING PAST FISCAL YEAR

A report recently submitted indicates that during the last fiscal year at the National Home for Lepers maintained by the Public Health Service at Carville, Louisiana, 49 new patients were admitted. There was an average of slightly more than 300 patients in the institution during the year. It is encouraging to note that 19 patients were released as no longer a menace to the public health. Six additional patients complied with the requirements for parole, but owing to their deformities and disfigurements which could not be cured, these patients elected to remain in the hospital rather than be subjected to the hardships and humiliations which are frequently the portion of many paroled lepers.

The nativity of the various patients of the leprosarium indicates that Louisiana and Florida had the largest number of any of the States, there were 10 patients who were born in Ohio. Of the patients admitted during the year, California leads with 15, Louisiana follows next with 11, Texas with 6, and Florida with 5.

Chaulmoogra oil, by mouth, was used as routine treatment in 137 patients, the dosage ranging from nine to 375 drops daily. One hundred and eighty patients are taking hypodermic injections of a special derivative of chaulmoogra oil. Dental work has continued as necessary. Supplementary treatment by means of physiotherapy and special light treatments are also given.—*United States Public Health Service.*

THE SERUM TREATMENT OF LOBAR PNEUMONIA*

BY MAXWELL FINLAND, M.D.†

SINCE the fall of 1919 a more or less continuous effort has been made at the Boston City Hospital to study the therapeutic effect of antipneumococcus sera, both whole and concentrated, in the treatment of lobar pneumonia. In the first four years of this period (1919-1922), a "Special Service" (Pneumonia Service) was conducted in separate wards by a special staff under the direction of Dr. Edwin A. Locke. Specific therapy during this period was limited to the use of the homologous antipneumococcus serum administered to Type I lobar pneumonias after the method of Cole and his coworkers[1] and has already been reported[2].

During the following years the "Special Service," as such, was given up and the patients were assigned to the regular medical services. The regular medical staffs have had, from that time on, complete charge of the medical care and treatment of all pneumonias, except that for a given period each year the specific serum treatment of these cases has been, through the courtesy of the members of the visiting staff, placed in the hands of a "Pneumonia Resident" under the general direction of Dr. W. H. Robey. The Pneumonia Residents have been, in each instance, holders of the Charles Follen Folsom Teaching Fellowship in Hygiene at the Harvard Medical School. The method of conducting the experiment, as well as the period during which it was conducted, varied somewhat from year to year. During the first season (1923-24) no attempt was made to alternate cases. Huntoon's "antibody solution" was used at first, but this was given up after three months, due to the large number of thermal reactions. Since that time the "concentrated pneumococcus antibodies" of Felton[3] have been used. From 1924 on, a control series was secured by giving serum to alternate cases of lobar pneumonia as soon as that diagnosis was made. During 1925-26, only cases entering the hospital within the fourth day of the onset of the disease were admitted into the series and these were alternated; in 1928-29 the cases admitted to two of the medical services were treated, leaving those on the two other services as controls.

Practically all the serum used since 1924 has been prepared in the laboratories of the Department of Preventive Medicine and Hygiene of the Harvard Medical School by Dr. Felton and the expenses were financed in part by the Influenza Commission of the Metropolitan Life Insurance Company, of which Dr. M. J. Rosenau is the chairman. Some of the material used in 1929 was concentrated by the Felton method at the Antitoxin and Vaccine Laboratory of the Massachusetts Department of Public Health, and supplied through the courtesy of Dr. Benjamin White. The earlier lots were monovalent for Types I, II and III. A mixture of these sera was used for initial injections and the homologous serum was used after the type was determined. In Type IV cases alternate injections of Type I and II sera were given. After 1926 polyvalent lots containing Types I and II antibodies were used exclusively, and the treatment was discontinued in cases where a Type III was determined and in Type IV cases when no benefit was apparent. Practically all of the serum was given intravenously. The average single dose per patient differed from year to year, as shown in Table I. It will be seen that the tendency was to use smaller single doses and smaller total amounts each succeeding year, as the potency in units of mouse protection (Felton[4]) increased.

TABLE I

DOSAGE OF FELTON'S SERUM USED AT THE BOSTON CITY HOSPITAL 1924-1929

Year	Average Single Dose (Cubic Centimeters)	Average Dose Per Patient (Cubic Centimeters)	Average Units (Felton) of Mouse Protection Per Cubic Centimeter	
			Type I	Type II
1924-25	23	101	150	50
1925-26	18	64	300	50
1926-27	18	91	700	50
1927-28	15	66	2000	1000
1928-29	11	42	2600	1400

It is important to consider that this experiment was conducted during the period of improvement in the methods of concentration of serum promoting immunity. A number of early lots were first used at this hospital and some of these gave thermal reactions when even small amounts were injected. The more recent material, however, has been more potent, as judged by mouse protection tests and by the relatively smaller doses used to give favorable therapeutic effects, and has given a negligible number of thermal reactions. Serum sickness occurred in 12 per cent. of all the recovered patients who received Felton's antibody, whereas, in Locke's series, serum sickness appeared in 73 per cent. of the patients who received the whole Type I antipneumococcus serum and recovered[5]. Furthermore, chills were about two and one half times as frequent following the injections of the whole

*From the Medical Services of the Boston City Hospital.

†Finland—Assistant in Medicine, Harvard Medical School. For record and address of author see "This Week's Issue", page 1265.

Type I serum in 1923 and 1924, as they were following the administration of the regular lots of Felton's concentrated antibody, in 1928-29.

The data for the period from the fall of 1924 to the spring of 1929 have been analyzed for both the treated and control groups. These analyses, some of which are summarized below, reveal significant differences in temperature curves, in the duration of the disease and in the mortality figures.

For the purpose of studying the effect of serum upon the fever, composite temperature charts were made for both the treated and control groups of Type I cases that recovered without complications. They showed that after the first 24 hours in the hospital and after the third day of the disease the average temperatures were lower in the recovered treated Type I cases than in the corresponding controls.

It will be seen that, except for Type III, serum treatment was begun in the fatal cases at an appreciably later period of the disease than it was in those that recovered. The fatal control cases were also admitted to the hospital later in their disease than those that recovered, but the difference in the control cases was not so marked as in those receiving serum. This is especially evident in the Type I cases.

The total duration of the acute disease is taken as the number of days from the onset until the mouth temperature reached, and permanently stayed below, 100°F. This period of time, was, on the average, appreciably shorter in the recovered treated than in the corresponding control cases. The average duration of the disease in the fatal cases was the same in both groups.

TABLE II.

EFFECT OF CONCENTRATED PNEUMOCOCCUS ANTIBODIES (FELTON) ON THE COURSE OF LOBAR PNEUMONIA

ANALYSIS OF THE DURATION OF THE DISEASE.

		TYPE I		TYPE II		TYPE III		TYPE IV		ALL TYPES	
		Treated	Controls	Treated	Controls	Treated	Controls	Treated	Controls	Treated	Controls
ALL CASES	Average duration at entry *	4.1	4.0	3.7	4.7	3.8	5.0	4.3	4.4	4.2	4.7
	Average duration at time serum was begun	4.9		4.2		3.8		4.7		4.7	
CASES RECOVERED WITHOUT COMPLICATIONS	Average duration at entry	3.7	4.7	3.4	4.2	2.9	4.7	4.0	4.3	3.8	4.4
	Average duration at time serum was begun	4.6		3.7		3.8		4.5		4.3	
	Average total duration of acute disease	6.0	8.0	5.7	7.9	6.3	8.2	7.5	8.2	6.6	8.1
	Average duration of acute disease in hospital	2.3	3.3	2.3	3.7	3.4	3.5	3.5	3.9	2.8	3.7
	Average duration of acute disease after the onset of serum treatment	1.4		2.0		2.5		3.0		2.3	
FATAL CASES	Average duration at entry	4.7	4.9	4.6	5.6	3.7	5.4	5.4	4.7	4.8	5.0
	Average duration at time serum was begun	5.4		5.3		3.8		5.8		5.4	
	Average total duration of disease	10.1	10.1	8.9	8.5	8.5	10.4	10.5	10.3	9.8	10.0
	Average duration in hospital	5.4	5.2	4.3	2.9	4.8	5.0	5.1	5.6	5.0	5.0
	Average duration after serum was begun	4.7		3.6		4.7		4.7		4.5	

* All numbers represent days

The duration of the disease has been analyzed for the treated and control series from several points of view. Some of the results of these analyses are shown in Table II. The average duration of the disease in all the cases at the time of their admittance to the hospital shows that the treated cases were admitted on the average 0.5 days earlier than the controls. It thus happens that serum administration was started at about the same stage of the disease as the controls were admitted. In the treated group, the difference between the duration at entry and the duration at the time serum was begun represents the delay in arriving at a diagnosis or in bringing the cases to the attention of the resident. For purposes of simplicity in analyzing the total duration of the acute disease, the recovered cases developing complications were excluded and the remaining recovered and fatal cases were grouped separately.

The duration of the acute disease after the patients entered the hospital was more brief in the cases receiving serum than in the controls. It is interesting to note that in the treated Type I cases that recovered, the acute disease continued for an average of 1.4 days after serum administration was begun, whereas, in the cases with pneumococci of other types, the acute disease continued for an appreciably longer period after the onset of serum therapy.

The average total duration of the acute disease has also been studied in relation to the duration of the disease at the time of admission to the hospital. The results for the treated and control groups in Types I and II are shown graphically in Figure 1. It will be seen that for the cases admitted early the total duration of the disease was consistently shorter in the Type I and II cases receiving serum.

Table III gives a summary of the mortality in the serum treated and control cases. The total mortality was less for the cases receiving

serum than for the controls. The most striking fact revealed in this table is that there was not a single death among 22 cases of Type I pneumonia receiving serum within 72 hours of the onset, whereas 6 of 16 control cases (37.5 per cent.) admitted within 3 days of the onset and receiving no serum died.

The Type III cases are too few to warrant much discussion. It is interesting to note, however, that the mortality was higher for Type III cases treated early than for the corresponding controls. For Type IV, the mortality was consistently lower in the cases receiving serum.

The mortality in cases with positive blood cultures was also tabulated and was found to be lower in the Type I and II treated cases than in the control cases with the corresponding types. Among the Type I cases, 44 per cent. of the cases with a bacteriemia died, as compared with 53 per cent. among the controls. Cases with a Type II bacteriemia showed a mortality of 57 per cent. among those treated with serum and 78 per cent. among the controls.

The figures presented here correspond in most respects to those reported by Cecil and Sutliff[6] and are, in general, comparable with those of Park, Bullowa and Rosenblüth[7].

As regards the incidence of complications in surviving cases, no striking differences were found between the treated and control groups: 7 per cent. in the former and 6 per cent. in the latter. In Type I cases there were complications in 11 per cent. of the treated survivals, as compared with 17 per cent. among the controls. Empyemas and lung abscesses constituted the majority of these complications.

The series here reported is too small for further detailed analysis. The data reveal the possibility that some choice may have been unconsciously exercised in selecting cases for treatment. Thus the average duration of the disease at entry in the treated cases was shown to be

EFFECT OF CONCENTRATED ANTIBODIES (FELTON)
ON THE COURSE OF LOBAR PNEUMONIA

DURATION OF ACUTE DISEASE ACCORDING TO STAGE OF DISEASE AT ENTRY

CASES RECOVERED WITHOUT COMPLICATIONS

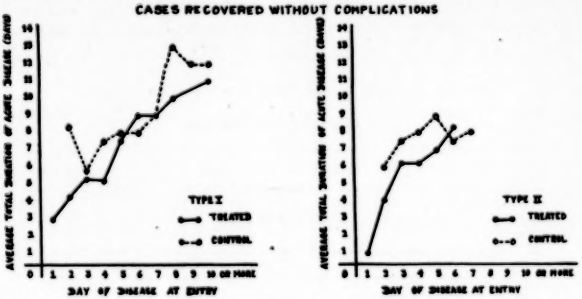


FIGURE 1.

TABLE III.

MORTALITY FROM LOBAR PNEUMONIA

BOSTON CITY HOSPITAL, 1928 - 1929

		TOTAL MORTALITY		CASES ADMITTED WITHIN 3 DAYS		CASES TREATED WITHIN 3 DAYS	CASES ADMITTED AFTER THIRD DAY		CASES TREATED AFTER THIRD DAY
		Treated	Controls	Treated	Controls		Treated	Controls	
TYPE I.	Cases	89	70	42	16	22	38	54	58
	Deaths	17	22	4	6	0	13	16	17
	Per Cent.	19.1	31.4	9.5	37.5	0	34.2	29.6	29.3
TYPE II.	Cases	39	37	21	10	14	18	27	25
	Deaths	11	11	4	2	2	7	9	9
	Per Cent.	28.2	29.7	19.0	20.0	14.3	38.9	33.3	36.0
TYPE III.	Cases	13	17	10	5	7	3	12	6
	Deaths	4	7	3	1	2	1	6	2
	Per Cent.	30.8	41.2	30.0	20.0	28.6	33.3	50.0	33.3
TYPE IV.	Cases	56	56	34	30	24	22	26	32
	Deaths	17	30	6	6	3	11	24	14
	Per Cent.	30.3	53.6	18.0	20.7	12.5	50.1	92.4	43.7
ALL TYPES	Cases	216	213	108	61	67	112	152	149
	Deaths	49	70	15	17	7	34	53	42
	Per Cent.	22.7	32.8	13.1	27.9	10.5	30.1	34.7	28.2

consistently less than for the controls. A similar discrepancy in favor of the treated cases was observed in comparing the age distribution of the cases in these two groups. It, therefore, seems wise to draw only guarded conclusions on the basis of these figures.

Comparisons, however, of similar groups of cases, both serum treated and controls, in regard to temperature curves, duration of the disease and death rates show convincing evidence that the acute disease was shortened and the mortality lowered in the treated cases. This therapeutic effect of the concentrated antipneumococcus sera (Felton) is evident in both Type I and Type II cases, but is especially true in the Type I cases treated within three days of the onset of the disease. That the maximum benefit from specific serum therapy is dependent upon the institution of this form of treatment in the first days of the disease has already been demonstrated beyond question in such other diseases as diphtheria, tetanus and meningococcus meningitis. It, therefore, seems likely that the effectiveness of serum treatment in pneumonia will become more apparent as greater emphasis is placed, in practice, on early diagnosis and early treatment.

Further work with modifications and improvement of the Type I and Type II concentrated antibodies and with the methods of their administration is now being carried on.

NOTE: The author wishes to express his indebtedness to Drs. Freedman, Trainer, Lessen, Donovan and Chayet, the "Pneumonia Residents" during 1923 to 1928; to Dr. W. H. Robey for permission to publish this series; and to the various visiting physicians who made this study possible.

REFERENCES

1 Avery, O. T., Chickering, H. T., Cole, R. and Dochez, A. R.: Acute lobar pneumonia. Monographs of the Rockefeller Institute for Medical Research, Number 7, 1917.
2 Locke, E. A.: The treatment of type I pneumococcus lobar pneumonia with specific serum. J. A. M. A. 80: 1507-1511, (May 26) 1923.
3 Felton, L. D.: A study of the isolation and concentration of the specific antibodies of antipneumococcus sera. Boston M. & S. J. 196: 819-822, (May) 1924.
4 Felton, L. D.: The units of protective antibody in antipneumococcus serum and antibody solution. J. Infect. Dis. 43: 531-543, (Dec.) 1928.
5 Locke, E. A.: Personal Communication.
6 Cecil, R. L. and Sutliff, W. D.: The treatment of lobar pneumonia with concentrated antipneumococcus serum. J. A. M. A. 91: 2035-2042, (Dec. 29) 1928.
7 Park, W. H., Bullowa, J. G. M. and Rosenblüth, M. B.: The treatment of lobar pneumonia with refined specific antibacterial serum. J. A. M. A. 91: 1503-1507, (Nov. 17) 1928.

ENDOTHELIOMA CUTIS*

Naevo-Nantho-Endothelioma: Report of Case

BY RUDOLPH JACOBY, M.D.,† AND JACOB L. GRUND, M.D.†

INTRODUCTION

THE importance of histopathology in the verification of various cutaneous disorders is well exemplified in those cases which only through this medium have been demonstrated to be endotheliomas of the skin. Endothelioma cutis as a clinical concept is not mentioned in some of the more important texts on dermatology[1, 2]. The so-called endothelioma of the scalp or endothelioma capitis, originally described by Spiegler, and almost invariably appearing under the latter heading, has been amply shown[3] to be a tumor derived from the epithelium and therefore an epithelioma.

The tumors in question (endotheliomata) have been considered by Ribbert[4] to be due to some embryonic disturbance of the epithelium together with a dilatation of the capillaries. Schmieden[5] attempted to explain their formation by the mere presence of capillary dilatation alone.

In an important and pertinent treatise on the morphologic and histogenetic characteristics of endothelial tumors, Zeit[6] presented a number of salient points which he believed were typical of this type of new growth and sufficiently unique and differentiating to distinguish it from carcinoma. Among these were the mesoblastic origin of the tumor cell, the appearance of the cells and their nuclei and other differentiating characteristics, an extended presentation of which is too extensive to repeat. Mallory[7] proposed the name of "hemangioendothelioma" for those tumors which show a definite proliferation of endothelial cells and new blood vessel formation. He later asserted[8] that all tumors arising from endothelial cells should be classed as endotheliomas.

The preceding views were subsequently firmly attacked by Krompecher[9, 10] and Fick[11] who, in a number of works on the subject, denied that such a structure existed. They believed that endothelial cells were, in reality, epithelial cells derived from the glandular structure of the skin.

However, Mallory's[12] later description of these tumors, together with the reports and histologic analyses of other pathologists[13], seems of sufficient weight to warrant the belief that endothelioma, as a distinct pathologic entity, exists.

REPORT OF CASE

An infant of sixteen months, of French Canadian parentage, was brought to the dermatologic clinic of the Massachusetts Memorial Hospitals for the treatment of a large number of growths on the face, neck, trunk, and extremities.

The history of the mother and father was negative. Three sisters were living and well; one sister died of malnutrition at two months.

*From the Department of Dermatology and Syphilology, Boston University School of Medicine and Massachusetts Memorial Hospitals.

†Jacoby—Chief, Department Syphilis, Massachusetts Memorial Hospitals. Grund—Assistant in Dermatology and Syphilology, Boston University School of Medicine. For records and addresses of authors see "This Week's Issue", page 1248.

The past history of the patient was essentially negative. Dentition, walking, and talking were, however, abnormally slow.

The parents first noticed the sudden appearance of a very large number of small reddish brown tumors on the face and body of the child when it was three months old. The child never scratched and was in nowise disturbed by the growths.

FIG. 1. Endotheliomata of face, trunk, and extremities.

Examination showed a fairly well developed but poorly nourished boy. The anterior fontanelle was open to the extent of 2 by 3 cm. The rest of the physical examination, with the exception of that of the skin, presented nothing abnormal for a child of the present one's age.

Discrete papules and small tumors were scattered over the entire body. They were much more numerous on the face than elsewhere and varied in size from a pinhead to a large pea. They were definitely raised and sharply defined from the surrounding normal skin. Some of the lesions were of the color of the skin. Some possessed a pinkish-yellow tinge. The majority, however, were reddish-brown. There was no dermographia. No subcutaneous nodules were apparent.

The urine examination was negative, as was also the von Pirquet test, as well as throat and blood cultures.

BLOOD EXAMINATION

Blood Chemistry			
Sugar	103.0 mg.	100 cc	Normal
N. P. N.	29.0		Normal
Urea	12.0		Normal
Uric Acid	3.5		Normal
Creatinin	1.4		Normal
Sodium Chloride	532.0		Normal
Cholesterol (Modif. of Bloor's Method)			.093 below Normal.

Wassermann Negative

Blood Culture Negative

Blood Morphology: Erythrocyte Count: Entirely within normal limits. Leucocyte Count: A definite increase not entirely consistent with the infant's age. Suggestive of a low-grade inflammatory process.

Platelet Count: A definite increase in number.

Haemoglobin: A definite decrease.

Color Index: Lowered, and suggestive of a secondary anaemia.

Coagulation Time: A normal finding, inclined toward high limits.

Differential Count: A most unusual morphological relation as follows: The lymphocytes totaled 49.2%, with the small lymphocytes reduced to 1.0% and the large lymphocytes increased to 48.2%. The latter were unusually large, did not show either azur granules or vacuoles in the cytoplasm or marked nuclear irregularities. This cell activity was consistent with a proliferative process in lymphoid tissue.

Polymorphonuclear Neutrophiles were reduced to 19.6%, and the majority showed 3 to 4 nuclear divisions which stained deeply. The granules in the cytoplasm were prominent and inclined to the basic rather than to a neutrophilic character. Vacuoles were not found in the cytoplasm.

Endothelial Leucocytes: The large mononuclear and transitional cells equalled 28.2% and combined were a very significant finding. The large mononuclear cells equalled 7.4%, which is slightly above normal limits. The transitional cells

FIG. 2. Endotheliomata of face.

were the most prominent feature in the entire study, with a total of 20.8%, as compared with a normal 4 to 5%. The nuclei, instead of presenting the usual horseshoe shape, showed three, four and five distinct divisions. Cells were observed with nuclei in varying states of division, even to complete division. Cytoplasmic inclusions and vacuoles were not found. The number and nuclear activity is suggestive of active proliferation of endothelial tissue.

Eosinophiles: A total of 2%; lay within a high normal limit.

Mast Cells: Normal limits.

Plasma Cells: Normal limits.

Erythrocytes: Did not show changes in either cell outline or cytoplasm.

Summary: The entire blood picture suggested a hyperactivity of lymphoid and endothelial tissues, producing a low grade leucocytosis, combined with a lowered color index suggestive of a secondary anaemia.

FIG. 3. Endotheliomata of forehead, nose, cheek, ear, neck, and lower occipital region.

The patient was observed for a period of several months, during which time the skin lesions presented no appreciable changes. Several months later the child died of a suddenly developing tuberculous peritonitis which bore no relation whatever to the condition under consideration.

Histopathology.—Sections through the small tumor masses presented a highly cellular tissue in which fibrous tissue was plentiful. There was much vascularity; many small capillaries were evident. The prickle cell layer was greaty thinned by the mechanical pressure of the tumor cells in the corium. There was a hyperkeratosis but no parakeratosis. The collections of cells which made up the body of the tumor masses were larger than leucocytes. Many were elongated and some polygonal in shape. These cells were verified as polynuclear endothelial cells (or the so-called epitheloid cells of Mallory). No pigmentation was present. There were few mitoses. No definite xanthoma cells were found. Occasional atypical giant cells were noted. Some of the giant cells were undoubtedly capillaries blocked with swollen endothelial cells and disintegrating red blood corpuscles. Perivascular infiltrates of round cells and fibroblasts accompanied some of the larger vessels. An abundance of fibroblasts predominated in the section. No xanthomatous elements could be found in the various sections examined. A diagnosis of endothelioma (naevo-xanthomatous in type) was made.

On presentation before the Atlantic Dermatologic Conference this was diagnosed, after superficial clinical examinations, as a case of xanthoma tuberosum multiplex, a condition entirely unrelated to the true disease present as revealed by microscopic section studies. However, on further study of the sections, the diagnosis of endothelioma was approved.

LITERATURE

In 1907, Gottheil[14] reported a case of endothelioma of the skin. It was in the form of a raised black spot, as large as a French pea, and was situated on the foot. Its appearance, color and consistency was that of a melanotic sarcoma. Its endotheliomatous nature was discovered only after its extirpation and subsequent microscopic study. Gottheil called attention to the importance of distinguishing this type of tumor from carcinoma because of the benign character, slowness in growing and tendency to early recurrence of the former after removal.

McDonagh[15] in 1912, under the designation of naevo-xantho-endotheliomata, described a peculiar type of endothelial tumor. Five cases, presenting almost identical skin lesions, were comprehensively presented. In one, yellow tumors, one-fourth to one-half inches in diameter, raised 3 to 4 cm. above the skin, were scattered over the entire body. The growths were apparent at birth. As the child grew older, the lesions assumed a darker color, became flatter and, when the patient was three years old, entirely disappeared.

In his second case, a number of similar tumors appeared fourteen days after the birth of the infant. The growths were of a reddish color. Many disappeared soon afterward. The remaining number gradually became smaller and disappeared spontaneously. In a third case, a clinical diagnosis of urticaria pigmentosa had been made. Microscopic examination of the growths disclosed their true structure, which was definitely endothelial. Fourth and fifth cases were described by the same author. In both, the tumors slowly changed in color. In one of these, they grew smaller and spontaneously disappeared. On microscopic examination, a number of characteristics were present which seemed to McDonagh to be of sufficient moment to warrant the belief that he was dealing with a distinct and clear-cut clinical entity. The tumor was found where there were no sebaceous glands. The tumor masses contained many lymphatics and capillaries, the linings of which were continuous and indistinguishable from the surrounding cells. The giant cells present were in reality capillaries blocked by swollen endothelial cells with faintly staining nuclei. The capillaries not completely blocked contained red blood corpuscles. McDonagh believed that the primary lesion was, in all probability, an overgrowth of the embryonic cells destined to form capillaries and lymphatics and that they developed from the mesoderm. The color of the nodules was ascribed to a dissolution of the endotheliomatous cells. The term *naevo-xantho-endothelioma* was applied to these tumors on the basis of the following: the lesions first appeared at birth or shortly thereafter; their color, size and consistence rendered them indistinguishable

from xanthomata; the cells which made up the body of the lesions were endothelial.

In connection with the previous microscopic descriptions in both of McDonagh's cases and that of the authors, the following dictum by Mallory[12] is of sufficient moment to warrant repeating: "Rarely, after the vessels (in the growth) become occluded, the endothelial cells accumulate fat, and sometimes also blood pigment from the blood corpuscles left within the lumina, and present in gross a yellowish appearance, in consequence of which they have sometimes been called xanthomas".

No further mention of the subject was made until 1919 when Wise's[16] excellent protocol on "Multiple Endothelioma of the Skin" appeared. A case of endothelioma simplex and one of naevo-xantho-endothelioma, together with microscopic studies, were reported upon in detail. In the first mentioned case, the eruption was hardly distinguishable from a case of disseminated moles or nevi and from syringo-cyst-adenoma. In the second case, diagnoses of urticaria pigmentosa and xanthelasmoidea were made by a number of competent dermatologists. Histopathologic studies disclosed the fact that the structure of the tumors was that of cellular infiltrates composed of endothelial cells derived from the lining membranes of the blood vessels in the corium. Wise expressed the belief that some of the cases previously described as moles, urticaria pigmentosa and syringo-cyst-adenoma without microscopic examination would, on the carrying out of this measure, prove to be structures of an entirely different nature.

COMMENT

From a pathologic point of view, the question has been raised as to the existence of a special type of tumor, the body of which, it has been asserted, is composed of endothelial cells, of mesodermic origin, derived from the lining of vessels or destined to enter into the formation of these vessels. It is logical, in the light of Zeit's work on the subject, in consideration of Mallory's treatment of the endotheliomas, because of the almost identical microscopic findings in McDonagh's cases, in Wise's cases, and in the case embodied in the present report, that endothelioma as a pathologic concept is distinct. The correlation of the clinical pictures of these cases with their microscopic details further accentuates this view. Furthermore, the assertions of Krompecher and Fick appear to have been disproved by McDonagh, who found that the tumors in his cases were present where there were no sebaceous glands. His deduction that there could be no connection between the two, on the basis of origin, seems logical.

In commenting on the relatively few cases reported in the literature, it is necessary to stress the great probability of an erroneous diagnosis on clinical examination alone. In one of McDonagh's cases, a diagnosis of urticaria pigmentosa was made. In Wise's case of naevo-xantho-endothelioma, the diagnosis of urticaria pigmentosa and xanthelasmoidea was given. In the case embodied in the present report, the opinion, antecedent to microscopic study, was unanimous that a case of xanthoma tuberosum multiplex was being deal with. From the point of view of prognosis and treatment, and with the knowledge of the course of these disorders in contrast with the spontaneity of disappearance of a naevo-xantho-endothelioma, the importance of differentiating endotheliomas from their clinical counterparts is obvious. Microscopic study in this connection is of paramount importance.

CONCLUSIONS

In the present study, a comparatively rare case (the seventh case recorded) of naevo-xantho-endothelioma, together with a review of the previous cases of this cutaneous disorder and the more important literature on allied endotheliomatous growths, have been presented.

Emphasis has been placed on the fact that the histopathologic picture in the present case and in those cases previously described, together with their clinical appearance, render them a distinct clinico-pathologic entity.

Further, it is believed that the close similarity, clinically, of these tumors to moles, urticaria pigmentosa and certain forms of xanthoma tuberosum multiplex may render an erroneous diagnosis more than probable and that microscopic examination is, therefore, a necessity in distinguishing them. The importance, from a prognostic point of view, of their correct diagnosis is obvious.

REFERENCES

1 Pusey, W. A.: The Principles and Practice of Dermatology. New York, D. Appleton & Co., 1925.

2 Sutton, R. L.: Diseases of the Skin. St. Louis, C. V. Mosby Co., 1917.

3 Adamson, H. G.: A case of multiple benign basal cell epithelioma of the scalp. Brit. Jour. Dermat., 30: 130, 1918.

4 Ribbert: Ueber Bau, Wachsthum und Genese der Angiome. Virchow's Arch. Path. Anat., 151: 381, 1898.

5 Schmieden, V.: Ueber den Bau und die Genese der Lebercavernome. Virchow's Arch. Path. Anat., 161: 373, 1900.

6 Zeit, F. R.: Morphologic and histogenic characteristics of endothelial tumors. J. A. M. A., 46: 567, Feb. 4, 1906.

7 Mallory, F. B.: The results of the application of special histological methods to the study of tumors. J. Exper. Med., 10: 575, 1908.

8 Mallory, F. B.: Pathology of malignant diseases of non-epithelial formation. J. A. M. A., 55: 1261, Nov. 5, 1910.

9 Krompecher, E.: Zur Histogenese und Morphologie der Mischgeschwulste. Beitr. z. path. Anat. u. z. allg. Path., 44: 51, 1908.

10 Krompecher, E.: Ueber die Beziehungen zwischen Epithel und Bindegewebe. Beitr. z. path. Anat. u. z. allg. Path., 44: 131, 1908.

11 Fick, J.: Ueber die Unbrauchbarkeit der Arbeitshypothese "Endotheliom". Dermat. Wchnschr., 54: 488, 1912.

12 Mallory, F. B.: The Principles of Pathologic Histology. Phila., W. B. Saunders, 1914.

13 Foote, J.: Hemangio-endotheliosarcoma of the liver. J. A. M. A., 73: 1042, Oct. 4, 1919.

14 Gottheil, W. S.: Endothelioma of skin. J. A. M. A., 48: 93, Jan. 12, 1907.

15 McDonagh, J. E. R.: A contribution to our knowledge of the naevo-xantho-endotheliomata. Brit. Jour. Dermat., 24: 85, 1912.

16 Wise, F.: Multiple endothelioma of skin. Am. J. M. Sc., 157: 236, Feb., 1919.

VULVOVAGINITIS IN CHILDREN

BY FREDERICK J. LYNCH, M.D.*

INFLAMMATION of the vulva and vagina in children is a condition which is found not infrequently and is an infection which has formerly been extremely resistant to all forms of treatment.

The disease is met with commonly in institutions in which female children are housed, and is, therefore, more frequent among the poorer classes. Although it occurs in the better classes, the method of infection in these cases is from the hands of the mother or from nursemaids. A common method of infection is from indirect contact, viz., by towels, napkins, soap or bed linen, or through some member of the family having the disease.

The gonococcus is the usual infecting agent, but the disease may also be caused by the Micrococcus catarrhalis, which is very difficult to distinguish morphologically from the gonococcus, the pneumococcus, the streptococcus and the Bacillus coli. Pin-worms or uncleanliness may be causative factors.

A very common way for the disease to be spread in schools, institutions, playgrounds and similar places where children are assembled, is through the agency of the toilet seat. In the child the vulva is more protuberant than in the adult, the seat is usually too high and, in getting down, the child slides from it, thereby wiping the infected vulva over the seat, leaving a source of infection for the next child who uses it. This situation is helped by the use of the U-shaped seat and a low bowl.

There is some evidence to support the contention that the gonococcus found in adult infections and that causing vulvovaginitis in children are of distinctly different strains. Thus the antigen prepared from the organism which causes adult gonorrhoea does not fix complement with the serum of the child, and vice versa. Therefore if a stock vaccine is to be used in its treatment, it is important to have organisms which have been obtained from a child.

The diagnosis presents no difficulty. There are the ordinary signs of inflammation, redness, swelling, and pain, with the parts bathed in a purulent discharge. A smear should be made of the discharge and examined by a competent bacteriologist; if a gram negative intracellular diplococcus is found, this should be enough to establish the case that of gonorrhoea and rigid isolation should be enforced. The non-specific vaginitis is not particularly contagious and the isolation need not be as strict. Many gynecologists believe that the slide examination should be strengthened by cultural and serological evidence. In view of the difficulty of growing the gonococcus in pure culture and the unreliability of the complement fixation test, it is our opinion that a positive smear is sufficient for diagnosis. It should be stated, however, that although intracellular organisms are abundant early in the course of the disease, they are later increasingly difficult to find.

The disease shows very little tendency to ascend, as it does in the adult, and it remains localized to the vulva, vagina and cervix. It was formerly thought that the cervix was rarely involved, but Williams, using a urethroscope, was able to obtain, in a series of forty-two cases, positive smears from the cervix in forty cases. The fact that the menstrual function does not exist in children probably accounts for the lack of tubal and peritoneal complications, as it is well known that the involvement of these structures is particularly apt to take place during this period. In a series of cases analyzed by Lees the following complications appeared:

Gonococcal infection of the eye	8.3%
Infection of the tubes and pelvic peritoneum	5.5%
Infection of the rectum	2.7%
Cystitis	0.9%

Bartholinitis is a rare complication, probably because the gland is in an undeveloped stage in children. It is thought that there is a distinct change in the character of the epithelium of the vagina at the age of puberty, which is the reason that the condition rarely persists beyond that period. Some children become carriers, however, and resist all forms of treatment.

Children with this disease should be treated in a hospital, if possible, where specific precautions may be carried out, that is, separate thermometers, bed pans and all toilet articles. If the parents cannot afford the expense of hospital care, or refuse to send the child to the hospital, these precautions should be carefully explained to the mother. The child should have a daily tub bath and a daily change of underclothing. The basis of most of the forms of treatment in use today is the employment of an ointment containing the gonococide. Gellhorn advocated, in 1920, the use of 1% silver nitrate in an ointment of equal parts of lanolin and vaseline; this was later modified by Stein, who used a 1% of mercurochrome 220-soluble. This ointment is introduced into the vagina by a syringe attached to a small catheter. The application of the antiseptic in the form of an ointment has the obvious advantage of its remaining in contact with the tissues a much longer time than an irrigation, and also it reaches the depths of all interstices of the vaginal tube and of the cervix.

Our experience has been that a 2% mercuro-

*Lynch—Assistant Professor of Gynecology, Tufts College Medical School. For record and address of author see "This Week's Issue", page 1268.

chrome is well tolerated by the tissues, and it may be conveniently administered in the form of an ordinary rectal suppository. This treatment is simple, does not rupture the hymen, is not painful and may be carried out at home by the mother on alternate days. The employment of vaccine therapy is a valuable adjunct to the local treatment but, as was indicated above, the organism should be obtained from a female child suffering with gonorrhoeal vulvovaginitis. No other treatment is necessary and if these procedures are carried out thoroughly, negative smears will be produced in all acute cases in from four to six weeks. This rapid clearing up is considerably different from the protracted treatment of months' and years' duration, with the various forms of irrigations, to which those who have worked in gynecological out-patient departments can testify.

One of the frequent causes of recurrence is the fact that the treatment has been stopped too soon. The treatment should be continued daily for at least two weeks after all clinical signs have disappeared. Negative smears should then be obtained at three successive weekly examinations, following a provocative dose of the vaccine. Although practically every case which complies with these requirements is cured, yet, having in mind the rare carrier, it is better to wait for three months, with negative smears at monthly intervals, before definitely announcing the case cured.

LITERATURE

Blanco, L. Y. and Villazon, N. M.: The treatment of gonorrheal vulvovaginitis in infants by means of vaccines. Dis. Child. 32: 805-811, December 1926.

Popoff, N. W., Ford, F. and Cadmus, W. H.: Mycotic vulvovaginitis. Am. J. Obst. & Gynec. 15: 315-320, September 1929.

Vogt, E.: Ueber die Beziehungen der Vulvovaginitis gonorrhoica infantum zu der späteren Tatigkeit der Genitalorgane und besonders zur sterilität. Deutsche med. Wchnschr. 52: 520-524, March 1926.

Fraser, A. R.: Vulvovaginitis in children. Ven. Dis. Inform. 7: 1-23, January 1926.

Stein, I. F.: Vulvovaginitis. Abt's Pediatrics, vol. 6, pp. 683-691. W. B. Saunders Co., Phila. & London, 1925.

Williams, T. F.: Gonococcus infection in female children. Am. J. Obst. & Gynec. 16: 861-866, December 1928.

Lees, David: Gonorrhoea in children; vulvo-vaginitis. Edinburgh M. J. 35: 61-84, May 1928.

Graves, Wm. P.: Textbook of Gynecology, pp. 182-185.

Rosenau, M. J.: Lecture Notes.

Dorne, M. and Stein, I. F.: Mercurochrome ointment treatment of vulvovaginitis. Illinois M. J. 45: 219-222, March 1924.

Tommasi, Lodovico: Criteri clinici per la diagnosi differenziale delle vaginiti infantili non blenorragiche. Policlinico 34: 415-421, March 1927.

ADAMS-STOKES' SYNDROME IN RHEUMATIC FEVER; REPORT OF A CASE*

BY JAMES M. FAULKNER, M.D.†

THE tendency of rheumatic fever to cause disturbances in auriculoventricular conduction is well-known and is specific enough to have a certain diagnostic value in obscure cases of partial heart block in young people[1, 2]. It is rare, however, for heart block from this cause to reach a degree sufficient to cause Adams-Stokes' syndrome. About a half a dozen such cases have been reported in the literature since Schuster's[3] description, in 1896, of a case of a four-year-old child who developed fainting spells with a pulse rate of 35 per minute, subsequent to an attack of acute articular rheumatism. The following case occurred in a man of 27 years of age, who, after an attack of rheumatic fever, suffered spells of unconsciousness with generalized convulsions, associated with slow pulse, and who showed marked delay in auriculoventricular conduction by electrocardiogram.

CASE REPORT

CASE No. 588808, Boston City Hospital. A house painter, aged 27 years, entered the hospital on July 3, 1929 for the treatment of repeated generalized convulsions. His *family history* was negative. His *previous history* revealed that he had had convulsions on two occasions in infancy and had suffered an attack of influenza in 1918. He had never had rheumatic fever, chorea, sore throat or tonsillitis. He denied venereal infection. He had never been aware of any cardiac irregularity or any palpitation, dyspnoea, precordial pain or edema.

Present Illness: Five weeks before admission to the hospital he had begun to have symptoms of fever with pain, tenderness, swelling and redness, first in the right knee, then in the left knee, and later in both elbows. After one week, just as the joint symptoms and the fever were subsiding, he began to have repeated attacks of loss of consciousness with generalized convulsive movements of the arms and legs. After three days of recurrent convulsions he was taken to a private hospital. The records of that hospital show that the convulsive attacks recurred with great frequency for six days after admission. The pulse rate was recorded as 32 per minute for the first three days and thereafter it fluctuated widely between 40 and 100 per minute. During this time he had an irregular fever, which reached 102°F. on one occasion. Examination of the urine on two occasions was essentially negative. After approximately three weeks he was transferred to the Boston City Hospital for study.

Physical examination on admission July 3, 1929 showed slight general lymph node enlargement, a slow irregular pulse of 40, a soft systolic murmur at the apex of the heart without evidence of enlargement, and some stiffness in the left knee.

Temperature 98.6°F. Respirations 20 per minute. Blood pressure 120 systolic, 70 diastolic.

The urine was pale, clear, alkaline, specific gravity 1.015, albumin—very slight trace, sugar—negative; the centrifuged sediment showed one to two leukocytes, and one red blood cell per high-power field and a rare fine granular cast.

The leukocyte count in the blood was 13,000 per cu. mm., hemoglobin 90 per cent.

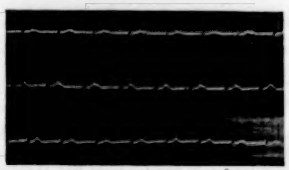
The Kahn test on the blood serum was negative.

Lumbar puncture was done and 18 c.c. of clear,

*From the Thorndike Memorial Laboratory and Fourth Medical Service, Boston City Hospital, and Department Medicine, Harvard Medical School.

†Faulkner—Assistant in Medicine, Harvard Medical School. For record and address of author see "This Week's Issue", page 1268.

colorless fluid was withdrawn at an initial pressure of 120 mm. of water. The dynamics of the spinal fluid were normal. The Wassermann test on the spinal fluid was negative, the colloidal gold test was negative, the total protein was 10 mgm. per 100 c.c. and the leukocyte count 3 per cu. mm.



Electrocardiograph taken July 10, 1929, showing prolongation of P-R interval (0.52 sec.).

The electrocardiogram, two days after admission, showed sino-auricular bradycardia, rate 40, partial heart block, P-R interval 0.28 to 0.32 seconds, Q-S interval 0.10 seconds; T upright in all leads; left ventricular predominance; and low amplitude of Q-R-S complexes (maximal 5 mm.).

The pulse continued to be very irregular for a week after admission, but during this time it gradually rose to an average rate of 70. This irregularity was almost certainly due to dropped beats since an electrocardiograph one week after admission showed a marked delay in auriculoventricular conduction as evidenced by a P-R interval of 0.52 seconds (See Fig. 1). Although it is quite unusual to get such a long delay in conduction without dropped beats, there did not happen to be obtained a record showing dropped beats in this case. Subsequent electrocardiograms demonstrated a gradual return of the P-R interval to within normal limits in the course of six weeks. The patient had no convulsions after admission. In the course of four months' stay on the ward, followed by six months' observation in the out-patient department, he showed only a slight increase in the intensity of the apical systolic murmur, with no evidence of enlargement on physical examination or by x-ray measurement.

Summary: A case is reported of a young man with rheumatic fever and marked prolongation in auriculoventricular conduction time who had periods of very slow heart action and fainting spells with convulsions.

BIBLIOGRAPHY

1 White, P. D.: Acute Heart Block Occurring as the First Sign of Rheumatic Fever. Am. Jour. Med. Sci. 152:589, (Oct.) 1916.
2 Levy, R. L. and Turner, K. B.: Impaired Auriculo-Ventricular Conduction in Rheumatic Fever: Comparative Study with Diagnostic Applications. Arch. Int. Med. 42:267, (Feb.) 1929.
3 Schuster: Zur kardialen Bradycardie. Deutsche med. Wchnschr. 60:48, (July 23) 1896.

PHYSICIANS REPLY TO QUESTION OF HASTENING DEATH OF DYING

Seventeen For, Twenty Against Euthanasia

The results of a questionnaire on permitting the hopelessly sick to live, submitted to one hundred eminent medical men by Dr. Julian W. Brandeis, Attending Physician at Lebanon Hospital, New York, are given in an article by Dr. Brandeis in the current issue of "Plain Talk".

Seventeen of the fifty who replied to the questionnaire unreservedly favor the practice of euthanasia (bringing life to a painless end). Six favor it with reservations. Seven have no formal views, and twenty unqualifiedly oppose it. Practically all of those replying agreed that at present euthanasia is restricted to the practice of administering opiates to the incurable and suffering in sufficient dosage to overcome pain. Only three cited cases in which it had been used to induce immediate death.

Dr. Brandeis himself favors the legalization of euthanasia, and he points out that in cases where it has been resorted to, usually by a relative, a jury has always adjudged the doer not guilty. Vigorous life is not jealously guarded against the ravages of war, he writes in "Plain Talk". Many are yearly sacrificed to speed manias of all kinds, and it is even difficult to impress a proper appreciation of prophylaxis against the dangers of infectious disease. There still survives, however, a legal tradition concerning the inviolability of the lives of the hopelessly ill, who might be spared the continuance of suffering through its occasional abrogation. Quite the opposite attitude is exhibited toward the suffering dumb animal.

MEDICAL HISTORY

WASHINGTON'S CAMPAIGN AGAINST SMALLPOX IN THE CONTINENTAL ARMY

BY WM. PEARCE COUES, M.D.†

IN the praise of Washington's purely military achievements, the facts concerning his campaign against smallpox, in his small and ragged army, are sometimes forgotten. It may not be too much to say, that his orders regarding inoculation of the troops under his command at Morristown in 1777, may have been a decisive matter in winning the Revolutionary War.

Hughes gives a most interesting account of this incident, in his third volume of "George Washington". (1777-1781.)

He tells us that the sickness and bad morals of the army at this time caused much added worry to the already heavy burdens of the Chief. In August, 1776, he says that out of 17,000 troops, 7000 were sick at once, and thousands died.

Washington was the victim of a severe attack of smallpox in the Barbados in his youth. He became, we are told, a staunch advocate of inoculation. We must remember that Jenner's studies of cow-pox did not begin until 1775-1778.*

"Washington had persuaded Martha to take smallpox in 1776, and he now made the heroic resolve to inoculate everybody and get it over with. His own camp was turned into a hospital and since he refused to accept any soldiers who had not undergone the mild form of the disease, all the recruiting camps became hospitals." "The result was grave delay in building an army, but when he got his man he had one less assurance of losing him in a crisis." Washington also advised strongly that inoculation be practised on his own family and his slaves. Hughes gives the following letter, from Washington:

"One of the best Physicians in this Army has assured me that the great skill which many of the faculty pretend to have in the management of this disorder, and the great Art necessary to treat the patient well, is neither more nor less than a cheat upon the world, that in general an old woman may Inoculate with as much success as the best Physician. The whole art lying in keeping the Patient rather low in diet, and cool, especially at the period of the eruptive fever . . . That this is truly the case, I firmly believe, and my own People (not less I suppose than two or three hundred), getting happily through it by following these instructions, is no Inconsiderable proof of it—Surely that Impolitic Act, restraining Inoculation in Virginia, can never be continued—If I was a member of that Assembly, I would rather move for a law to compel the Masters of Families to inoculate every child born within a certain limited time under Severe Penalties—"

Hughes says: "His proclamation demanding that the New Jersey people take the oath, or exile caused even less excitement than his orders that not only the soldiers but the families they came from, or lived with, should have the small pox forced into them. He was perhaps the first dictator to take so drastic a liberty with the people's liberties. Catherine the Great of Russia, in attempting the same rescue aroused the ferocious opposition of prelates and people."

Ashbel Green, later to become president of Princeton College, we are told, was a boy of fourteen, living near Morristown at this time. There was consternation among the citizens when it became known that Washington contemplated quartering and inoculating his army at Morristown.

Washington told the anxious leaders of the townspeople, that he anticipated no trouble from the inoculation of the troops and that any townspeople affected would be treated by the physicians without charge.

Green states that in his whole family "There was not a single pock that filled". The whole army, he says had the disease so lightly that there was not a day when the troops could not have marched against the enemy. For a time his father's church became a hospital for those people who had natural smallpox before they could be inoculated. He writes, "More frightful and pitiable human beings I have never seen. The heads of some of them were swelled to nearly double their natural size, their eyes were closed, and their faces were black as coal. The most of these died."

Hughes tells us that, "The colonies must have presented to the enemy such a face as was enough to keep Howe at a distance". Creswell, an Englishman who was marooned in Virginia described the look of some of Washington's neighbors: "Go to Alexandria to dinner. All the townspeople, and a regiment of soldiers that are quartered here all inoculated for the Smallpox and I believe there is a great number that has the Greatpox along with them. Such a pock-eyed place I never was in before."

Had not Washington taken the bold stand he did at Morristown, it seems almost certain that his small army would have been "totally and permanently incapacitated" as a fighting unit.

*Medical authorities give 1778 for Jenner's first investigations on cow-pox.—W. P. C.

†Coues—Surgeon to Out-Patients, Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 1268.

REFERENCE

Rupert Hughes: George Washington The Savior of the States, 1777-1781. New York, William Morrow and Company, 1930.

MEDICAL PROGRESS

RECENT ADVANCES IN NEUROLOGICAL SURGERY

BY TRACY J. PUTNAM, M.D.*

THE great landmark in neurological surgery, in 1929, was the sixtieth birthday of Dr. Harvey Cushing (April 8), Professor of Surgery at Harvard University for nineteen years; holder of some forty-odd honorary degrees and fellowships; author of eight books, one of which was awarded the Pulitzer prize, and of almost 250 shorter articles. Thirty years ago, he found the surgery of the brain a trackless wilderness, and under his hands it has opened into a fruitful field. More noteworthy than any of these achievements is Harvey Cushing himself, whose name will be remembered as long as the art of surgery survives.

A special "Cushing Birthday Volume" was issued as a part of the *Archives of Surgery* for April, made up of contributions from his former pupils. These include most of the recognized neurological surgeons of the world, and while the articles which the volume contains cover many other subjects also, it is in itself a fairly comprehensive symposium of the present status of neuro-surgery. This was presented to Dr. Cushing by Dr. Elliott Cutler at a reception at the Surgical Laboratory. Those who were present will not soon forget Dr. Kenneth McKenzie's gift, a number of typical Cushing neckties, with the poem, "The Tie That Blinds".

PATHOLOGY AND SYMPTOMATOLOGY OF BRAIN TUMORS: SUPRATENTORIAL

Of Dr. Cushing's four neurosurgical publications for 1929, two deal with the meningiomas arising from the dorsum sellae and conditions simulating them (Cushing & Eisenhardt: Meningiomas arising from the tuberculum sellae. *Arch. Ophth.* 1:1-41, 168-205, 1929; Cushing: The chiasmal syndrome of primary optic atrophy and bitemporal field defects in adult patients with a normal sella turcica. 13th International Ophthalmological Congress, Amsterdam, 97-184, 1929.) Such meningiomas occur usually in patients in middle life. Impairment of vision is often the only symptom, and it takes the form of a bitemporal hemianopia, usually unequal in the two eyes. Ophthalmoscopically, there is a primary atrophy (sometimes very slight). There is seldom any deformity of the sella or symptoms of involvement of the pituitary gland. The operative mortality in expert hands is low.

Rarely, nodular adenomas of the pituitary, craniopharyngeal pouch cysts, aneurysms of the anterior communicating artery, and "chronic cisternal arachnoiditis" may simulate them. The last three conditions are not susceptible to surgical attack.

Guttmann & Spatz (Meningioma of the anterior chiasmal angle, *Nervenarzt* 2:581, 1929) report three additional cases, one of which was symptomless.

Bostroem & Spatz (Olfactory groove meningiomas and meningiomas in general: *Nervenarzt* 2:505, 1929) record a series of these tumors, confirming Cushing's well-known findings.

Kolodny (Symptomatology of tumor of the frontal lobe, *Arch. Neurol. & Psychiat.* 21:1107-1127, 1929) finds it very difficult to formulate a syndrome, or even to decide which points are most important in differential diagnosis.

Glaser (Tumors of pineal, corpora quadrigemina and third ventricle; interrelationship of their syndromes and their surgical treatment. *Brain* 52:226-261, 1929) records a number of new cases in this group, but has nothing new to offer in respect to diagnosis. Surgical treatment of tumors of this region has so far been uniformly unsuccessful, and yet substantial advances have been made in the technique.

Fulton & Bailey (Tumors in region of third ventricle; diagnosis and relation to pathological sleep. *Journal of Nerv. & Ment. Dis.* 69:1, 145, 261, 1929) report 5 cases from the Brigham Hospital clinic, and review a large amount of other work on the subject. Tumors and other lesions of these regions are rare, and may cause any one or more of a variety of syndromes: (1) the infundibular syndrome (polyuria, adiposity); (2) the syndrome of the central gray matter around the posterior end of the third ventricle and aqueduct of Sylvius (hypersomnia); (3) the thalamic syndrome (central pain, painful hyperthesia); (4) the extrapyramidal syndrome (bradykinesia, rigidity); (5) the decerebrate syndrome (hypertonicity, Magnus-de Kleijn reflexes); (6) the syndrome of Parinaud (paralysis of conjugate vertical movements of the eyeballs); (7) the syndrome of the body of Luys (hemichorea); (8) the hypopituitary syndrome (infantilism, hypotrichosis); (9) the uncinate syndrome (olfactory hallucinations). Tumors in this region are rare, and very varied in structure.

The contribution of Elsberg & Globus (Brain tumors with acute onset and rapidly progressive course: "acute brain tumor". *Arch. Neurol. & Psychiat.* 21:1044-1078, 1929) is chiefly notable for reminding us again that brain tumors may show an acute onset of symptoms. The patients were mostly men, aged 40-60, who came down suddenly with signs of intracranial pressure and

*Putnam—Visiting Physician in Neurology, Boston City Hospital. For record and address of author see "This Week's Issue", page 1268.

irritation. Most of the tumors were spongioblastomas.

Parker (Tumor of the brain associated with diffuse softening and turbid cerebrospinal fluid. *J. Neurol. & Psychopathol.* 10:1-13, 1929) reports a case of rapidly developing hemiplegia and aphasia, with fever and without choked disc. A sterile fluid containing 1,600 polymorphonuclear leucocytes was obtained. At autopsy, an extensive spongioblastoma multiforme, involving the ventricular wall, was found.

Bailey and Bagdasar (Intracranial chordoblastoma. *Am. J. Path.* 5:439-449, 1929) report two cases of a very rare tumor arising from the basisphenoid, and causing multiple nerve palsies and hydrocephalus. Such tumors are often present in the nasopharynx, and may be revealed by the x-ray.

Bagdasar (Le traitement chirurgical des gommes cérébrales, *Rev. neurol.* 2:3-32, 1929) has also looked up all the verified gummas in Dr. Cushing's series. They constitute about 0.5% of all cerebral tumors, and surgical intervention is usually highly successful. Medical treatment is often unsuccessful, and if in doubt as to whether a given lesion is gummatous or neoplastic, it is usually safer to operate than to experiment with medical treatment.

Martin (Tumors of the brain and syphilis, *Arch. Surg.* 18: 1531-1539, 1929) reminds us that not all neurological symptoms in patients with positive Wassermanns are syphilitic, and that the first thought should be of surgery, not mercury, when there is evidence of an expanding focal lesion.

BRAIN ABSCESS

Some definite rules for the treatment of brain abscess are laid down by McKenzie (*Arch. Surg.* 18:1594-1620, 1929). The abscess should be located by puncture, without extensive exposure. It should then be exposed through an opening directly over it. An ample drainage tube should be inserted to the bottom of it. If the procedure is properly carried out, the cavity is converted into a small crater at the top of a herniating mass, which gradually subsides.

POSTERIOR FOSSA TUMORS

Puusepp (Die Kleinhirn-Brückenwink el-Tumoren, *Folia Neuro-Chir.* 9:51-147, 1929) reports 32 cases of neurinoma, 8 of sarcoma, 2 of endothelioma, 3 of glioma, 3 of cyst, 1 of tuberculoma, and 4 of serous cystic meningitis. Perhaps the most interesting facts in the detailed report are those relating to the spinal fluid. Lumbar puncture was performed with all precautions in 20 cases, without ill effects. Pressure was always increased. There was an increase in protein in all cases except one (a neurinoma), and xanthochromia in 2 out of 12 cases of neurinoma, and 2 out of 3 cases of sarcoma. There was no significant pleocytosis.

TUMORS OF THE SPINAL CORD

An excellent concise account of the pathology and treatment of tumors of the spinal cord is given by Elsberg (Tumors of the spinal cord. *Arch. Neurol. & Psychiat.* 22:949-965, 1929). The article is too detailed to be profitably abstracted.

Elsberg & Strauss (Tumors of the spinal cord which project into the posterior cranial fossa, *Arch. Neurol. & Psychiat.* 21: 261-273, 1929) found 7 cases among 185 of spinal cord tumor in general. Both high cervical and posterior fossa symptoms were present.

SPECIAL DIAGNOSTIC PROCEDURES: VENTRICULOGRAPHY, ENCEPHALOGRAPHY, MYELOGRAPHY, ROENTGENOLOGY

Pancoast and Fay (Encephalography: roentgenological and clinical considerations for its use. *Am. J. Roentgenol.* 21: 421-447, 1929) give an excellent and extensive review of this diagnostic procedure, which is in general more adapted to medical than to surgical neurological cases.

Puusepp (Eine neue Methode de Ventikulographie. *Folia Neuro-Chir.*, 9:183-186, 1929) suggests the use of a double needle and of air under definite pressure, controlled by a manometer, for replacing ventricular fluid. The advantages are obvious, but the apparatus appears somewhat clumsy for use when the ventricles are hard to reach. Moreover, the most dangerous element in ventriculography, namely the irritating effect of the air on the ependyma, is not avoided.

Bingel (Experiences with encephalography. *Ztschr. f. d. ges. Neurol. u. Psychiat.* 114:323, 1928), reports a large series of cases, both medical and surgical. He recommends ventriculography as a therapeutic measure in meningococcus meningitis, but gives no case reports.

Rosenheck's case (Encephalography: development or hemiplegia following its use: reports of a case. *Arch. Neurol. & Psychiat.* 22: 575-582, 1929) shows that the procedure is not devoid of danger.

Myelography. The status of the use of opaque oils in the diagnosis of spinal obstruction appears to be little changed. On the one hand, there are those who believe such materials are innocuous and frequently helpful in diagnosis; on the other hand, there are those who abhor foreign bodies in the subarachnoid space, and believe them certainly irritating, usually superfluous, and sometimes misleading in diagnosis. These points of view are well represented in the discussion of Globus & Strauss' extensive study (Intraspinal iodolography; subarachnoid injection of iodized oil as aid in detection and localization of lesions compressing the spinal cord. *Arch. Neurol. & Psychiat.* 21: 1331-1386, 1929).

Gardner and Frazier (Ventriculography without air injection, *J. A. M. A.* 93: 193-194, 1929) review the chemistry of opaque oils, and suggest

a new compound of desirable physical properties. They make no report of the cellular response to its injection in animals, its absorbability, or its clinical advantages, however.

Balado (Diagnosis of ventricular obstructions by lipiodol injections. *Bol. Inst. de clin. quir.* 4: 536-543, 1928) uses lipiodol instead of air in determining the position of the ventricles, and particularly of the third ventricle.

Mayer (Value of ascending iodized oil in diagnosis of certain brain diseases. *Fortschr. a. d. Geb. d. Roentgenstrahlen* 38: 619-638, 1928) however, finds that the ascending variety adds little but danger to the diagnosis of tumor, and furthermore obscures subsequent observations.

Egas Moniz, Pinto & Lima (Arterial encephalography after injection of iodine preparation into carotid for diagnosis. *Presse Méd.* 37:500-504, 1929) report 4 more cases in which tumors were localized by the injection of iodides into the carotid, with simultaneous roentgenography. They state that the procedure is "inoffensive"; however, convulsions are common and deaths have occurred.

Pancoast (The significance of petrous ridge deformation in the Roentgen-ray diagnosis and localization of brain tumors, *Am. J. Roent.*, 20: 201-205, 1928) confirms Towne's findings of deformity of the petrous ridge, viewed at a special angle, in many cases of angle tumor.

Recent methods of study of intracranial tumors include growing their cells in vitro (Kredel: Intracranial tumors in tissue culture, *Arch. Surg.* 18:2008-2018, 1929). Medulloblastomas, spongioblastomas, astrocytomas, meningiomas and neurinomas have been cultured in this way.

SPINAL MANOMETRY

Davis and Pollock (Manometric method for determination of level of spinal subarachnoid block. *Surg. Gyn. and Obst.* 49: 378-379, 1929) describe a method by which the level of spinal obstruction may be determined without the use of iodized oil or double puncture. The patient is placed in a sitting position, the needle introduced in the lumbar region, and a water manometer attached. Successive equal amounts of saline are introduced into the system. At a level opposite the obstruction the rise in the manometer becomes abrupt. This should be worth trying.

OPHTHALMOLOGICAL EXAMINATIONS

Baillart (Relation between cerebral and retinal circulation. *Médecine* 10: 24-27, 1929) and Gallois (Baillart's method of measuring retinal arterial pressure in diagnosis of cerebral hypertension, *J. de Med. de Paris*, 48: 223-225, 1929) report on the results of a method of measuring approximately the pressure of the arterioles seen by the ophthalmoscope. This corresponds roughly to the intracranial pressure. The procedure is not cumbersome, and seems promising for clinical use.

Davis (The blind spots in patients with intracranial tumors, *J. A. M. A.* 92: 794-797, 1929) calls attention to the enlargement of the blind spot which accompanies true papilledema. It may serve as a point in differential diagnosis in doubtful cases, and give a clue to the progress or recession of choking. The blind spot is determined with a campimeter which may be brought to the patient.

Eagleton, W. P. (Localizing value of ophthalmic examination in suppurative diseases of brain. *J. A. M. A.* 92: 713-120, 1929) reports a number of cases in which repeated field examinations revealed defects apparently due to edema of the brain in the region of the optic radiations. The defects were fluctuating and much less clean-cut than those due to direct pressure by a tumor.

Van Wagenen (The incidence of intracranial tumors without choked disc in a year's series of cases. *Am. J. Med. Sci.* 176-346, 1928) finds that in a series of 145 patients with verified intracranial tumors, seventeen (11.7%) failed to show the presence of a choked disc at time of admission. Six of these were in the posterior fossa: three acoustic neurinomas, two cerebellar and one medullary. In half the cases, there was evidence of increased intracranial pressure, nevertheless. In 30%, calcification was demonstrated by x-ray.

SPECIAL TECHNIQUE

The introduction of the Bovie electrosurgical apparatus by Cushing (Cushing and Bovie, *Surg., Gyn. and Obst.* 47: 751-784, 1928) has provided the neurosurgeon with a new weapon, which has rapidly gained a place in most special clinics. Elsberg (*Surg., Gyn. and Obst.*, 48: 733-744, 1929), for example, also reports excellent results with it.

A review of the principles of the instrument used and its results are given by McLean (*Arch. Surg.*, 18: 1863-1873, 1929).

In two important papers, de Martel (Surgical treatment of brain tumors. *J. de chir.* 33: 1-19, 1929, and Diagnosis and surgical treatment of brain tumors. *Ann. di neurol.* 42: 138-157, 1928) reports the fruit of his experience and ingenuity in neurosurgery. He describes the use of a special seat for the patient, permitting craniotomy in the upright position; the employment of an antiseptic varnish for the scalp; the use of fresh muscle taken from an animal as a hemostatic; an apparatus for supplying a stream of warm sterile saline; and other little devices about which every neurological surgeon would do well to ponder.

The question is often asked still as to the *mortality* following operations for brain tumor. Eisenhardt (The operative mortality in a series of brain tumors, *Arch. Surg.* 18: 1927-1935, 1929) gives the following table from the Brigham Hospital series:

Diagnosis	No. of patients	Operative mortality (%)
Gliomas (varia)	609	17.8
Adenomas (chiefly pituitary)	271	5.3
Meningiomas	188	10.3
Neurinomas (acoustic)	131	11.5
Congenital tumors (chiefly craniopharyngeal)	90	11.7

There is a particularly high mortality among cases of misdirected explorations. Postoperative meningitis and fungus are now almost unknown.

THE SURGERY OF OTHER CONDITIONS THAN TUMOR: NEURALGIA

Dandy (Operation for cure of tic douloureux; partial section of sensory root at pons. *Arch. Surg.* 18:687-734, 1929) reports a new radical operation. Through a unilateral cerebellar exposure, he divides *a portion* of the fibers of the sensory root. The motor root is easily recognized and spared. Amazingly enough, common sensation usually returns to the denervated areas. Fay and also Grant (Philadelphia Neurol. Soc., *Arch. Neurol. & Psychiat.* 23: 394-395, 1930) have used this method, but find it more difficult than the classical temporal approach, and could not demonstrate return of sensation. Indeed, one case developed a keratitis. It is not clear, however, that they left any of the sensory fibers.

Petit-Dutaillis & Loewy (Facial neuralgia: neurotomy of sensory roots according to Dandy. *Bull. et mem. Soc. Nat. de Chir.* 55: 1209-1263, 1929) prefer Dandy's technic, but have seen accidents (deafness, hemorrhage) from it.

How satisfactory the old operation is, is shown by a report from Frazier (Operation for radical cure of trigeminal neuralgia; report of 500 cases. *Tr. Am. S. A.* 48: 218-231, 1928).

Peet (Postherpetic neuralgia; persistence of pain after section of sensory root of gasserian ganglion. *J. A. M. A.* 92: 1503-1505, 1929) records an experience which other neurological surgeons have also surely had. I have known a similar case to be greatly relieved by trichlorethylene.

OTHER CHRONIC PAINFUL CONDITIONS

Fay (Surgical relief of pain in extensive malignant disease. *J. A. M. A.* 91: 375, 1929) and Grant (Relief of pain by nerve section *J. A. M. A.* 92: 116-122, 1929) call attention to a neglected field of surgery. There are many cases of incurable disease, especially cancer of the head and neck, in which pain is the most distressing feature, and often a simple surgical procedure is sufficient to relieve it. A great variety of rhizotomies are described in these two papers.

White (Angina pectoris: relief of pain by paravertebral alcohol block of upper dorsal sympathetic rami, *Arch. Neurol. & Psychiat.* 22: 302-312, 1929) has developed a technique which is extremely simple and effective in relieving the pain of angina pectoris, and bids fair to replace the various operations on the cervical sympathetic which have been proposed.

Rowntree, Hench and Grist (*Proc. Staff Meetings Mayo Clinic*, 5: 23-25, 1930) report briefly some favorable results from sympathetic resection in chronic arthritis. They tentatively suggest its use in young individuals with progressive arthritis which has resisted other forms of treatment but has not produced severe bony deformity, and especially those with objective alterations in vasomotor tonus. The object is, of course, to improve the blood supply of the joint. A few operations of this type have been performed in this community, but with unsatisfactory results.

Brown & Adson (Physiologic effects of thoracic and of lumbar sympathectomy or section of trunk. *Arch. Neurol. & Psychiat.* 22: 322-357, 1929) in studying a large series of cases, found that following lumbar sympathectomy vasodilation of the feet lasted as long as three years, with relief of pain and gangrene in most instances of thrombo-angiitis in which the process was not too far advanced. Raynaud's disease of the fingers was greatly improved by removal of the first and second thoracic ganglia.

Both Raess (End results of periarterial sympathectomy, *Deutsche Ztschr. f. Chir.* 215: 309-317, 1929) and E. Machus (Observations on periarterial sympathectomy, *Ibid.* 216: 271-277, 1929) found permanent improvement in chronic ulcers of the leg to be rather the exception.

An extensive article on the now well-established operation of cordotomy is contributed by Horrax (*Arch. Surg.* 18: 1140-1164, 1929).

OPERATIVE TREATMENT OF SYRINGOMYELIA

In 1926, Puusepp published some encouraging results following the incision of the cavity of the cord in syringomyelia. Isolated cases had been so treated before. Oppel (Erfahrungen mit der operativen Behandlung der Syringomyelie nach Puusepp, *Arch. f. Klin. Chir.* 155: 416-434, 1929) reports six more cases. In all, there was some improvement, which was very striking in three. The fluid in the cavity was found to be under pressure. The best results were obtained in early cases.

Dandy (Loose cartilage from intervertebral disc simulating tumor, *Arch. Surg.* 19: 660-672, 1929) records a remarkable case.

THE SURGERY OF CEREBRAL TRAUMAS

Bagley (The grouping and treatment of acute cerebral traumas, *Arch. Surg.* 18: 1079-1118, 1929) has made a valuable study of the types of injury to the brain and their manifestations, which is too long and detailed to be abstracted here. He recognizes 7 groups: simple depressed fractures, compound fractures, extradural hemorrhage, blood overlying cortex, cortical injuries (of various types) extravasation in the vein of Galen system, and hemorrhage in the brain stem.

The article should be read in the original by those interested.

Boyd (Post-traumatic headache treated by spinal insufflation of air, *Arch. Surg.* 18: 1626-1637, 1929) reports good results from Penfield's treatment.

Demmer, F. (Treatment of brain wounds by tamponade and lumbar puncture; results after 10 years. *Arch. f. klin. Chir.* 152: 381-392, 1928) reports some excellent late results in compound gun shot fractures of the skull by forcing a conical plug of iodoform gauze into the wounded brain, and keeping the pressure low by repeated lumbar punctures.

An excellent general review of the surgery of hydrocephalus is given by Davidoff (*Arch. Surg.* 18: 1737-1762, 1929). So far, operative results have been discouraging, but experimentation does not seem hopeless.

GENERAL COMMENT

Neurological surgery is just passing out of the pioneer stage. Great advances have been made, and great mistakes. The common procedures have been standardized, and new territories are being explored. Advances may be expected in two directions: in operative technique, which is already so different from general surgical technique; and in neurological diagnosis, which is becoming a rather special field in general neurology. In addition, neurosurgery has a particular interest in such specialties as ophthalmology and otology, and urgent need of more information in regard to physiology and pathology. It is rather a newcomer in each of these older branches of medicine, and as the assortment of abstracts herewith presented will show, has much to learn from them; but also, perhaps, something to teach.

"PROFESSOR" R. V. WALDEN THE WALDEN INSTITUTE

On June 3, 1930, Rudolph V. Walden, self-styled scientist and "famous dietitian" was convicted in Hartford, Conn. of violation of that state's healing arts laws and fined $200.

Action against Walden followed a visit to his offices by a healthy investigator for the Hartford Better Business Bureau, a wrestler and athlete of considerable repute, who was diagnosed by Walden as suffering from kidney trouble, high blood pressure and heart trouble. Assuring the investigator that he was a "master of all your ailments" Walden offered to make a new man of him for $150 although his regular fee, he stated, was $500.

Walden appears to have operated "Institutes" in various localities. He also treats by mail and in a recent periodical advertisement represented that he could correct high blood pressure, angina pectoris, inorganic heart trouble, hardened arteries, etc. Walden has no use for medicines but works his miracles by prescribing diets to his patients.

Although Walden describes himself as a "professor", an individual who claimed to be his son recently informed this Bureau that his father had no training as a scientist as far as he knew but was self-educated. Official records do not disclose the name of R. V. Walden as a physician licensed to practice medicine in this country.

Walden's police record is extensive. In 1921 he was arrested in Tampa, Florida on charges of using the mails to defraud and in 1924 was arrested in Richmond, Virginia on the charge of being a suspicious character practicing medicine without a license and having liquor stored in his possession. Both of these cases were eventually dismissed but in 1915 he was successfully prosecuted in the state of Ohio for practicing medicine without a license. Then known as von Walden, he was fined $250 and costs and sentenced to one year in the workhouse, the jail sentence being suspended. This action was instituted shortly after the death of an individual who had been pronounced hopeless by reliable physicians but whom Walden agreed to heal collecting $250. According to the *Ohio State Medical Journal* some time after this incident Walden induced a resident of Chattanooga to come to Cincinnati for treatment, kept him there for ten days, collected $500 and sent him home in a dying condition.

In newspaper accounts of the Hartford case, police estimate Walden's weekly earnings as $6,000 to $10,000 and his personal fortune from $500,000 to $1,000,000. The same source credits Walden with the statement that he came to this country from Germany in 1884.—*National Better Business Bureau, Inc., Commercial Department.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 16261

FOUR MONTHS' JAUNDICE AND RECTAL PAIN

MEDICAL DEPARTMENT

A Canadian farmer fifty-eight years old entered February 20 for study. His chief complaints were jaundice and pain on defecation, both of four months' duration.

The onset of the jaundice was sudden, when he was perfectly well. With it he had generalized itching which "drove him nearly frantic" for two weeks, then stopped and never recurred. A few days after the onset he began to have diarrhea, twelve to fifteen movements a day, with severe knife-like pain around the outside of the anal orifice. After a week the stools became clay-colored and remained so. Pills prescribed by his physician aggravated the diarrhea, which lasted for three weeks. Since the onset of the illness he had seen very occasional small flecks of blood in the stools. Six weeks after the onset a second physician examined his urine and rectum and told him both were normal. The rectal examination caused severe pain. Eight weeks before admission his scrotum and ankles began to be swollen at night. This lasted until he stopped work eight weeks before admission by advice of a third doctor, not because he felt particularly ill. This doctor relieved his rectal trouble with a salve. By his advice the patient had kept to a diet of milk and toast for the past six weeks. His stools became a little darker and were now formed and about the size of his little finger. He had now practically no pain on defecation. A week before admission he began to have very slight dull pain across the entire upper abdomen and felt a little weak and tired. Recently his jaundice had become less marked and his urine, at first very dark, had become somewhat lighter. During the entire illness his appetite had been fair. He had had occasional slight nausea and gagging after a little heavier meal than he was accustomed to in the present illness. He occasionally had a sense of fullness in the epigastrium. Since the onset he had urinated two or three times at night. He had slept rather poorly. He weighed 172 pounds in July, 165 pounds in October. He felt he had lost thirty or forty pounds since that time, though he had not weighed himself.

His family history is not significant.

He was always well and strong until the present illness. He had diphtheria in childhood and had numerous peritonsillar abscesses during the three years beginning five years ago. Thirty-one years before admission he had gonorrhea for three months. Two years before admission he had prostatectomy (?) following frequent and painful urination fifteen to twenty times by day and ten times at night. He had had no trouble since the operation.

Clinical examination showed an emaciated, deeply jaundiced man. Apex impulse of the heart not seen or felt. Left border of dullness 8 to 9 centimeters to the left of midsternum. Midclavicular line 7.25 centimeters to the left. No other percussion measurements recorded. Rhythm regular. Sounds of fair quality. A systolic murmur at the aortic area. Artery walls markedly palpable and tortuous. Blood pressure 153 systolic to 120/70. Atelectatic râles at the bases of both lungs at first, later clearing. Abdomen enlarged by liver extending to two to three inches across midline. Notch felt. Gall bladder not felt. Rectal examination showed an inflamed external hemorrhoid, a very tight sphincter, prostate gone. Edema of the left ankle. Pupils slightly irregular. Reflexes normal.

Urine: 42 to 68 ounces, specific gravity 1.010 to 1.018, albumin questionable at one examination, the slightest possible trace at two of five others, bile very strongly positive at five, positive at the sixth, rare leukocytes to 30 to 35 with clumps at five of six sediment examinations, occasional red cells once and a rare granular cast to one to two granular casts per field at five examinations. Blood: 28,000 to 80,800 leukocytes, 94 per cent polynuclears, hemoglobin 60 per cent, reds 3,100,000 to 3,200,000, moderate achromia, platelets slightly increased. Icteric index 30 to 75. Bleeding time three minutes. Clotting time fourteen to seventeen minutes. Blood sugar 100 milligrams. Non-protein nitrogen 138. Hinton negative. Van den Bergh 16.65 to 21.4. Liver function 80 per cent retention. Stools clay colored at all of four examinations, guaiac negative.

Temperature 100° to 96°. Pulse 70 to 96. Respirations 10 to 31.

Plain gall bladder films showed no visible gall stones.

The patient lingered until March 13, showing progressive weakness and inanition. A surgical consultant advised against operation.

CLINICAL DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

I take it the jaundice went on after the itching stopped. A very mysterious thing which I have never heard accounted for is the loose relation

between jaundice and itching. Of two people equally jaundiced, one will itch, the other will not itch. Here we have apparently very severe jaundice first with itching, then without it.

He has a jaundice which has persisted for four months apparently, and has had a diarrhea during most of that time. There is local tenderness and pain in the rectum. There is apparently marked loss of weight; and a history of some operation on the bladder two years ago. He is fifty-eight years old. One naturally thinks of malignant disease, but where it is primary, if it is malignant disease, I do not know.

NOTES ON THE PHYSICAL EXAMINATION

The very tight sphincter is perhaps the cause of the pain felt on examination.

That is an unusually high leukocyte count, and a big polynuclear count, 94 per cent.

The non-protein nitrogen is of course greatly increased.

The liver function is what one would expect.

DIFFERENTIAL DIAGNOSIS

We have a man of fifty-eight with chronic jaundice and very little pain in the liver, which almost always makes us think of malignant disease. Secondarily there is marked diminution of the liver function, so that 80 per cent of the testing dye is retained. Apparently there is no evidence of ascites and nothing distinctive about the kidney. His diarrhea apparently was not notable while he was here. Have we a record of his dejections?

MISS PAINTER: He had two dejections one day, the rest of the time one or none a day.

DR. CABOT: So that we do not have to take that into account. It has no important relation to his death. Many people with jaundice have diarrhea anyway.

The leukocytosis is not accounted for clearly by anything I have said. One can get leukocytosis from neoplasm of the liver. I have never seen a count so high as this from neoplasm of the liver. I shall be surprised if there is not some inflammatory cause of that, but I have not made out any in going over the physical examination. If he has an inflammatory lesion I do not know where to put it. Could he have an abscess of the liver? I should say no; certainly not a single abscess. There might conceivably be multiple abscesses of the liver, but his temperature does not look like that. It would be strange if he had a severe septic cholangitis with a temperature never above 100°. There was nothing significant in the chest or in the nervous system or in the gastro-intestinal tract, although in the beginning we thought of cancer of the rectum. That does not seem possible with the negative findings as to intestinal function while here. The report on the rectal examination means they did not feel any evidence of anything higher up than the prostate. The tight sphincter would prevent that.

It is perfectly possible that the cancer is in the head of the pancreas. That would account for his jaundice and for the enlargement of the liver. The liver is not nodular so far as we know; no nodules were felt. The pancreas is the commonest cause of obstructive chronic painless jaundice in old people. The bile ducts and the gall bladder are other possible sources of this cancer, if it is cancer. The three common causes of jaundice are: (1) catarrhal, which obviously he could not have died of; (2) gall stones, which I also think he could not have died of and which there is not much to suggest; and (3) cancer. Acute yellow atrophy is beginning to get common enough so that we almost have to add it as a fourth common cause of severe jaundice. He certainly has not an atrophied liver and he has none of the cerebral symptoms that generally go with that disease near death. We have no definite indication of syphilis or of liver cirrhosis in the history. By exclusion it seems to me that cancer is the most probable thing, and having no way of saying where it is I have to go on statistical probability and name the head of the pancreas as the best guess.

I still have not accounted for that leukocytosis and I do not know how to do so. I still feel that it needs explanation and we need something more than cancer of the pancreas.

A STUDENT: Can you have a polynuclear leukemia?

DR. CABOT: No. That is one of the things we can say positively about the blood—there is no such thing as polynuclear leukemia.

A STUDENT: How about the possibility that the prostate which had been removed two years before might have been the source of the neoplasm?

DR. CABOT: That suggestion certainly needs consideration. I do not know how long after a prostatic neoplasm had been removed metastasis may appear. We have no X-rays of his bones, which often give us some hint as to prostatic metastasis.

A STUDENT: Dr. Quimby said he had a case which lasted three years.

DR. CABOT: That is good evidence that this might come under that head. We would say, then, that from a prostatic cancer there is metastasis in the liver.

A STUDENT: How do you explain his high non-protein nitrogen?

DR. CABOT: I do not see how we can explain it. I do not think there is enough evidence in the urine, the history, the blood pressure or anywhere else to make a diagnosis of kidney trouble.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the pancreas.

DR. RICHARD C. CABOT'S DIAGNOSIS

Malignant disease primary probably in the pancreas, possibly in the bile ducts or the prostate, with metastasis in the liver.

ANATOMIC DIAGNOSES

Squamous cell carcinoma of the common bile duct with metastases in the liver and retroperitoneal lymph nodes and central necrosis of the liver.

PATHOLOGIC DISCUSSION

BY TRACY B. MALLORY, M.D.

At autopsy we found an enormous tumor in the liver, also a tumor in the upper quarter of the common bile duct. The bile duct was negative below that point. There were islands of tumor in apposition with the head of the pancreas but not directly involving it, and definitely metastatic foci in the retroperitoneal lymph nodes. We were a little uncertain at the time of autopsy as to where the tumor was primary. Microscopic sections, however, showed that it was a squamous cell carcinoma, quite contrary to our expectations. So far as I know the only one of the various organs involved by this tumor where we get squamous cell carcinoma would be the common bile duct. Such tumors are common in the gall bladder, which is lined by the same type of columnar epithelium. Under the influence of chronic inflammation of many years' duration columnar epithelium can change into squamous epithelium and as a result we can get an epidermoid carcinoma in an area where squamous cells are not normally present. The prostate had been very largely removed, but there were several remaining nodules which showed no evidence of tumor, and I certainly never heard of an epidermoid carcinoma of the prostate. On the histology of the tumor alone I think it would be possible to rule that out as the primary source. The gall bladder itself was negative.

DR. CABOT: You do not explain that leukocytosis except by saying it was a rapidly growing tumor.

DR. MALLORY: The tumor mass in the liver showed a central area of necrosis with extensive cavitation. That may have been at least partly responsible. That is the only suggestion I can make.

DR. CABOT: Two points worth remembering are that you can get as big a leukocytosis as that with a liver tumor and can get a very high nonprotein nitrogen with a normal kidney.

ORDERS

February 21. Dr. C. M. Jones's diet for jaundice*. Fluids ad libitum. Morphia one-sixth grain s.c. Boric ointment p.r.n. for hemorrhoids.

February 25. Fifty per cent glucose diluted one-half with water with lemon juice added, unless it nauseates; try to get in thirty ounces of this by mouth before 9 p. m.

February 27. 1000 cubic centimeters fifty per cent glucose.

March 2. Do not force fluids at night; try to get 100 ounces in by day.

March 11. Morphia one-sixth grain s.c. once tonight if noisy and thrashing about in bed.

*Breakfast. Cornflakes one cup. Skimmed milk one cup, with lactose 30 grams in the milk. Sugar one tablespoonful. Two slices toasted white bread. Two tablespoonfuls marmalade.
Dinner. One baked potato. One-half cup beets, peas or carrots. Six prunes or one banana. Two slices of toast. Two tablespoonfuls jelly.
Supper the same as breakfast.

NOTES ON THE TREATMENT

BY DR. CABOT

The diet is well planned by an expert in liver disease. The great limitation of fat and animal protein are its essentials and are required by the exclusion of bile from the intestine.

Glucose with lemon juice is easy to take and furnishes a good deal of nutriment.

CASE 16262

CARCINOMA OF THE ESOPHAGUS; THE LIMITATIONS OF TREATMENT BY GASTROSTOMY AND RADIATION

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. OLIVER COPE*: This woman, a widow of fifty-nine, had noticed difficulty in swallowing since January. She developed gradually one or two periods of vomiting without any nausea and noticed discomfort in her chest on taking solid food. She had worked as a housekeeper and had given up her work two weeks before entrance because of pain and weakness. When she entered the Eye and Ear Infirmary she was taking liquids, which she could take without difficulty. She had had no real nausea. Her bowels moved regularly. In the Eye and Ear Infirmary they found by X-ray examination that she had an obstruction in the lower third of the esophagus characteristic of carcinoma.

She was transferred to the surgical service. She was an arteriosclerotic woman with moderate hypertension, blood pressure 185/125, heart enlarged somewhat to the left, a loud systolic murmur at the apex. She was considered a poor surgical risk. We thought she was only moderately dehydrated at the time. She refused to consider her condition serious and accepted operation lightly.

She was operated upon without further X-ray examination. Gastrostomy was done under local anesthesia. Her convalescence was perfectly normal. She had moderate wound sepsis. There was constant purulent discharge. She ran a very slight fever, only about 100°. She had a leukocyte count of 22,000. She took feedings perfectly well by tube, a high calorie mixture†

*Junior interne on the West Surgical Service.

†High caloric mixture: 40 eggs, 1½ quarts heavy cream (40 per cent), 3 quarts whole milk, 120 grams lactose. Cook in a double boiler until the lactose is dissolved.

to over 2000 calories a day. We kept her in bed because of the wound sepsis.

On the fourteenth day the temperature rose to a little over 102° and the pulse to 90 to 120 or 130. There were no symptoms. The next day there was mild cough. At no time during the next eight days did she produce any amount of sputum. The cough was not productive, or she swallowed the little sputum there was. The physical examination that followed this rise in temperature showed nothing except diminished breath and voice sounds over the right upper lobe. Examination of the chest the day following showed some râles on the right. We never heard any bronchial breathing. The signs in the right upper chest remained unchanged except for the appearance of râles. X-ray examination showed consolidation of the right upper lobe. The leukocyte count the day after the rise in temperature was 55,000. From that time it gradually dropped to 30,000 the day before death, eight days later. She was mildly cyanotic throughout. About the third day after the pneumonia developed she became semicomatose and remained so. She could be roused and could talk a little. In the last few days she was hyperactive and somewhat irrational. Her cyanosis increased. The temperature remained elevated in the region of 102°. The pulse was very good throughout most of the course until the last day, when it dropped off quite suddenly and became thready at 120.

Clinical Discussion

Dr. George W. Holmes: The appearance in these films is rather characteristic of pneumonia of the upper lobe.

Dr. Edward P. Richardson: I feel in general that gastrostomy for carcinoma of the esophagus is a disappointing operation. The mortality is high. The duration of life is short. Nevertheless I see nothing for it but to go ahead and attempt to prolong life. One might make an error in diagnosis unless biopsy were done. However, I think Dr. Holmes would say that in the vast majority of cases the X-ray appearance is characteristic. It is not so much that anything goes wrong with the operation as it is that one thing or another develops as a complication and possibly only two-thirds of the cases leave the hospital alive. This case apparently did not show the characteristic course of postoperative pneumonia. I should prefer to say that intercurrent pneumonia developed during convalescence.

I have been interested in the extent of invasion of esophageal growth into the surrounding tissues. One would expect a type of epithelioma that might be well localized. But I imagine that at the time of autopsy at least there is extensive invasion and also that at the time of production of symptoms they must be those of annular constriction, and therefore the lesion has been there a long time.

Clinical Diagnoses (from hospital record)

Carcinoma of the esophagus.
Lobar pneumonia, right upper lobe.

Anatomic Diagnoses

Squamous cell carcinoma of the esophagus.
Pneumonia of the upper lobe of the right lung with miliary abscess formation.

Pathologic Discussion

BY TRACY B. MALLORY, M.D.

The autopsy showed an annular tumor about four centimeters in length which very markedly constricted the esophagus. It was fairly low. The middle of it was about 5 centimeters below the bifurcation of the trachea. There was no gross evidence of extension of the tumor into the surrounding tissues. Section however showed that it had invaded the muscularis and reached the adventitia at one point.

The right upper lobe showed a pneumonia which was distinctly atypical in character, with practically no fibrin, quantities of polynuclears and a great deal of necrosis of the alveolar walls. It is a type which instead of resolving would unquestionably go on to single or multiple abscess formation.

Dr. Richardson: Would you say that was inhalation pneumonia dating from the operation?

Dr. Mallory: Unfortunately we have no bacteriologic study on it. We have not had a chance to stain any sections for bacteria. Abscess formation rarely occurs in pneumococcus pneumonia. On the other hand we do not see many inhalation pneumonias restricted to an upper lobe.

Dr. Holmes: Would this case have been favorable for X-ray therapy?

Dr. Mallory: Histologically this is not a highly malignant tumor. I certainly would not grade it higher than II. Such well differentiated carcinomas are always unfavorable for X-ray therapy.

Dr. Holmes: We had a theory at one time that as these tumors are very much like the tumors one gets in the skin, squamous cell carcinoma, which is usually fairly well localized and does not spread to the surrounding lymph nodes until quite late, we ought to be able to destroy them with radiation therapy. But there the stricture is not relieved and the patient still has obstruction and has to have some other means of being fed than by mouth. Tumor of the esophagus lies in a part of the body where one can give large doses of radiation. It is possible to attack from four points and have the rays cross in the tumor. The tumor can be localized and radiation directed accurately. There are no vital structures in the path of radiation, so it would seem possible to get in large enough doses to destroy a tumor. Al-

though the whole theory looked reasonable, it did not work out. Some patients seemed to have relief for a time, and I think it prolonged life slightly. We had no cures, however, and we did not have enough relief to warrant continuance.

We also tried applying radium, as has been done in other clinics. There the trouble is to localize the dose accurately to the tumor. It is apt to be a little above or below it and necrosis is apt to destroy some part of the wall of the esophagus. The results were unsatisfactory.

DR. JAMES C. WHITE: How many cases of perforation did you have after radiation? I remember a few cases about three years ago. After radiation treatments the temperature shot up and they had mediastinitis

DR. HOLMES: Was that with radiation? My impression is that we have had no cases with radiation alone. Where we combined radiation with radium we did have some. We felt the perforation was always due to applying the radium in not exactly the right place.

DR. WHITE: I can remember one case where the patient did well for about a fortnight after operation. He was then given a series of X-ray treatments. During the course of the treatments the temperature, pulse and respirations suddenly became elevated and he developed streptococcus hemolyticus septicemia. We thought that this was due to an infection of the mediastinum. There was no autopsy, so we could not be sure.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

HOMER GAGE, M.D. JOHN W. BARTOL, M.D.
ROGER I. LEE, M.D. ROBERT B. OSGOOD, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D. STEPHEN RUSHMORE, M.D.
REID HUNT, M.D. HANS ZINSSER, M.D.
JOHN P. SUTHERLAND, M.D. BENJAMIN WHITE, PH.D.
GEORGE R. MINOT, M.D. HENRY R. VIETS, M.D.
FRANK H. LAHEY, M.D. ROBERT N. NYE, M.D.
SHIELDS WARREN, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. H. H. AMSDEN, M.D.
R. H. MARCOTTE, M.D.

THE VERMONT STATE MEDICAL SOCIETY
PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
J. A. WARK, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 165 Newbury Street.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 165 Newbury Street, Boston, Mass.

INTRAVENOUS UROGRAPHY

SINCE 1905, when Völcker and von Lichtenberg first demonstrated, by instrumental pyelography, the possibility of visualizing the renal pelvis, the thought that the same end might be achieved by means of the excretory power of the kidney has inspired numerous researches in this direction. In 1923 Rountree and his associates published the first positive results, which were obtained by the use of sodium iodide intravenously. Their results, although encouraging, were not sufficiently good to warrant the general use of this method. Roseno was more successful; the urea-iodine combination which he employed gave a urogram which was definite enough to enable him to determine the condition of the upper urinary tract, but the drug was not tolerated in all cases. The substance which we now know as uroselectan, synthesized by Professor Arthur Binz of Berlin in 1927, was used in von Lichtenberg's Clinic in Berlin in the early part of 1929, and was found to combine the qualities of rendering visible the outline of the urinary tract and of being non-toxic in the doses employed. The first of these properties depends upon the excretion of iodine in the urine.

During the past six months this drug has been supplied to certain clinics in the United States and almost without exception those who used it found it to be harmless and efficient. At the annual meeting of the American Urological Association, on June 12, 1930, Professor von Lichtenberg and Professor Binz presented the results of their work and introduced it to the medical public. Following their papers, reports upon clinical experiences with uroselectan were given from the principal clinics of this country. It was generally agreed that in perfecting this method of pyelography, a diagnostic measure of the greatest value had been given to the medical profession.

Uroselectan, as has been demonstrated by Hughes and Schaffhauser, is secreted by the glomeruli of the kidney. If the glomeruli have been destroyed, the drug is not secreted; it acts therefore not only as a visualizing agent, but also as an indicator of the excretory power of the kidney. If the renal parenchyma is destroyed, no shadow due to the iodine will be found in the renal area. Furthermore, uroselectan in the dosage generally employed should be practically absent from the blood within four hours after its injection; if after that period it can still be demonstrated in the blood, the excretory function of the kidneys must be considered to be below normal.

Valuable though uroselectan may be as an indicator of renal function, its chief clinical value lies in its power to visualize the entire urinary tract. The indications for its use as expressed by von Lichtenberg are found in the following conditions:

1. Those cases in which, due to anatomical and pathological or technical reasons, it is impossible to use cystoscopy, ureteral catheterization or instrumental pyelography.
2. In those cases of ureteral obstruction in which the pyelographic solution cannot be injected beyond the obstruction.
3. In those cases in which instrumental pyelography carries a risk for the patient.

The question that occurs to everyone is, will intravenous urography supplant instrumental urography? In certain cases it undoubtedly will. Obscure medical cases undergoing thorough study will probably be examined by this method rather than by cystoscopy. If the findings are normal, further urologic study will not be needed. If, however, pathology is found to exist, it is probable that further demonstration of the lesion by means of the cystoscope and ureteral catheter will be required before operation. According to present experience with intravenous urography the greatest value of the method is in its ability to give us information about kidneys, the ureters of which cannot be catheterized. von Lichtenberg considers as especially suitable

for this method cases of "urethral strictures, severe bladder disease, cases of bleeding, cases of ruptured kidneys, cases of fistulae, and in young children; and in cases of transplanted ureters. Intravenous urography is especially indicated in those cases in which catheterization of the ureter cannot be done with safety, as in cases of acute and chronic disease of the adnexa, in tuberculosis, in cases of prostatic hypertrophy."

Like other laboratory tests, intravenous urography is valuable only in proportion to the accuracy of its interpretation. More knowledge of urological pathology, rather than less, is necessary if one would employ this method properly. Rightly employed and correctly interpreted, it is a great gift to the medical profession.

THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

PLYMOUTH acted as host to the Massachusetts Medical Society this year and extended a royal welcome to the Fellows and their wives and invited guests.

The exercises began promptly Tuesday morning with an unusually large number in attendance at the first session. Each succeeding exercise was well attended and it seemed to be the unanimous opinion that all papers and discussions carried useful and stimulating information. If any one missed the exhibit of specimens of cancer from the Massachusetts General Hospital, the Deaconess Hospital and the Boston Dispensary arranged by Dr. Daland of the Pondville Hospital and his associate, an opportunity was lost to become acquainted with the various manifestations of this protean disease. The fracture exhibit was also instructive.

Rain coming the second day may have discouraged a few, but the attendance was quite up to the expectation of the most hopeful. The total registration was 799 of whom 524 were doctors. The large proportion of ladies (for most of the guests were the wives of doctors) is evidence of the growing interest in the affairs of the Society by women. The unprofessional woman often enjoys a discussion on medical matters and especially when there is a popular appeal. This growing interest may eventually lead to the formation of a Woman's Auxiliary Society in Massachusetts although up to the present time the attitude has not been generally encouraging.

The Council meeting although not of record length was continued after the Cotting Lunch and careful attention was given to the program. Several matters of great interest were up for discussion and the report, which will be published as soon as possible, should be given careful reading.

The concert and entertainment Tuesday evening consisting of vocal and instrumental music interspersed with demonstrations of the Terpsichorean art drew a large audience. As the evening progressed general dancing followed the especial features provided by the entertainment committee.

Those who were not interested in all of the scientific programs found much to enjoy in the opportunities for refreshing historical memories.

On the second day, attendance was augmented by a considerable number of new faces of those especially interested in the day's program and the dinner at night.

This latter function had to be carried on in the Armory rather than in the tent because of the rain.

The guests invited by the President, Dr. Greenough, and seated with him were on his right the Rev. Alfred R. Hussey of the First Parish Unitarian Church of Plymouth, Mr. Fred Jenks of the Plymouth Cordage Company, Mr. W. T. Eldridge, Chairman of the Selectmen of Plymouth, Dr. Thomas H. McCarthy of Brockton, Vice-President of the Massachusetts Medical Society, Dr. F. W. Murdock, President of the Plymouth District Medical Society, Dr. Clarence L. Scamman of the State Department of Public Health, Dr. Edmund H. Stevens, Cambridge, and Dr. Thomas J. O'Brien of Boston. On the President's left were Frederick W. Cook, Secretary of the Commonwealth of Massachusetts, Robert G. Dodge, Esq., Counsel for the Massachusetts Medical Society, Dr. David W. Parker of Manchester, New Hampshire, formerly President of the New Hampshire Medical Society, Dr. W. P. Bowers, Dr. Enos H. Bigelow, ex-president of the Massachusetts Medical Society, Dr. Joseph Garland of Boston, Associate Editor of the *New England Journal of Medicine*, and Dr. E. Parker Hayden, Chairman of the Committee of Arrangements.

After the banquet had been disposed of, the President introduced the speakers with appropriate references to the position held by each.

The Hon. F. W. Cook brought the greetings of His Excellency, F. G. Allen, Governor of the Commonwealth of Massachusetts, who desired to have the Society know of his appreciation of the services to the State rendered by physicians. Mr. Cook took occasion to remind the audience of the statistics on file in his department with respect to births and deaths. Last year the birth rate was the lowest recorded since 1850, while the death rate has not changed materially leading to the speculation of the possibility of seriously affecting the growth of this section of the country if there shall be shown in the future a progressive decrease in the birth rate. He joined with Governor Allen in his appreciation of the important place in the State filled by physicians.

Mr. W. T. Eldridge representing Plymouth cordially welcomed the Society and referred to the influence of physicians of earlier years in contributing to the important events in the history of the Colony.

Mr. Fred Jenks, representing the Plymouth Cordage Company which is the largest industry in this region, emphasized the fact that the success of industry depends upon the healthful conditions of the community as they relate to the promotion of the efficiency of the workers, illustrating his ideas by references to the importance of medical service supplied to employees and their environment.

He referred by name to several of the early practitioners in this section who were important factors in promoting the prosperity of this region and expressed his sense of security of the future under the advice and assistance of the medical profession.

Robert G. Dodge, Esq., Counsel for the Massachusetts Medical Society, took as the main theme of his address "Malpractice Defense" explaining first the plan adopted by the Society of defending suits against those of its members who do not carry insurance, making it clear that the Society pays no indemnity but meets the cost of defense only.

He felt that although there is a general impression that the situation is getting worse his experience did not tend to show that doctors are in more danger from suits for alleged damages than formerly. He believed that the explanation of the motive behind the suits is under three classifications: Dissatisfaction of the patient with the physician's charge which leads to the expedient of a claim for damages as an offset, or attempt to frighten the doctor, or second, the unguarded remark of another doctor, nurse, or attendant and third, the unduly large number of lawyers registered to practice. Statistics show that there are nearly as many lawyers in Massachusetts as in New York or in Philadelphia, and there are large numbers of prospective practitioners in the law schools. This multitude of lawyers beyond the actual needs for legal services leads to the encouragement of every possible opportuntiy for practice for it is well known that a doctor's reputation may suffer through the publicity of a malpractice suit and rather than defend himself he may prefer to agree to a compromise even though there is no likelihood of an adverse court decision. In the defense of its Fellows, the Society does not permit an independent compromise. Certain figures had been submitted to him by indemnity insurance companies showing that with one company there were forty-three suits entered in 1928, forty-four in 1929 and thus far seventeen in 1930 with the result that of sixteen cases brought to trial there were four verdicts for the plaintiff and twelve for the defendants and one case was settled out of court when there was evidence of fault on the part of the doctor. This interesting account was closed with pertinent suggestions respecting the rights and obligations of a doctor when called to testify in court, for no one is obliged to appear as an expert against his will but must be ready to testify to facts with which he is cognizant and in testifying to fact may be expected to give his opinion when asked.

Dr. David Parker, Ex-President of the New Hampshire Medical Society and a delegate guest of the Massachusetts Medical Society gave a detailed account of the formation and subsequent history of the New England Medical Council in which the subjects of study by this Council had been of assistance to his own state in the formation of policies affecting defense and other matters. He advised active support of this organization which twice each year brings together representatives of all the New England Medical Societies for discussion of the problems before the profession with the suggestion that unless medicine is better organized the laity will control the public health agencies and clinics and the profession will be submerged and relegated to a subordinate rather than a commanding position in the future development of ideas and plans of a socialistic nature.

Dr. Joseph Garland spoke on the "Modern Trends in General Practice" and brought out in a most effective and delightful way the conditions and tendencies in medicine of former times in contrast with those of the present as shown by the gradual disappearance of some diseases and the recognition or discovery of others which will fill the field of those more or less obsolescent ills which occupied the attention of our predecessors. This address was a fitting sequence of the series of articles published in the *New England Journal of Medicine*, under the title of the "Doctor's Saddle Bag" in which the author mingled the pathos, humor and psychology of the doctor's work and his problems.

The exercises were brought to a close by the spirited address of the Rev. Dr. Hussey, Pastor of the First Parish Unitarian Church of Plymouth, who also eulogized the doctors who have been influential in that section giving many interesting incidents in the life of Dr. Samuel Fuller who is regarded as a learned and faithful example of the high calling of medicine. He did not neglect to mention the Plymouth doctors of today who are upholding the traditions of medicine in the highest degree and in whose ministrations the people of Plymouth have felt secure. One especially interesting fact is that Rev. Dr. Hussey is a classmate of President Greenough.

This very insufficient sketch of some of the features of the meeting will convey to our readers very little of the high standard of excellence of the program, and the hospitality of Plymouth. Those who did not attend were unfortunate for nothing happened to mar the success except possibly the discomfort incident to rain.

The honor of this highly successful meeting must be shared equally by the quality of the scientific work in the Sections, the literary excellence of the Annual Oration and the Shattuck Lecture as well as the perfect details elaborated

and made effective by the local committee under by the Committee of Arrangements augmented the leadership of Dr. Hill.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

BUNKER, JOHN W. M. A.B., A.M., Ph.D. Professor of Biochemistry and Physiology, Massachusetts Institute of Technology, Cambridge. His subject is: "Uses and Abuses of Ultra-Violet Light." Page 1229. Address: Massachusetts Institute of Technology.

PELOUZE, P. S. M.D. Jefferson Medical College, 1902. Associate in Urology and Genito-urinary Surgeon to the University of Pennsylvania. His subject is: "The Prevention and Treatment of Gonorrhea." Page 1233. Address: 1737 Chestnut Street, Philadelphia, Pennsylvania.

MCCARTNEY, JAMES L. S.B., D.N.B., M.D. Rush Medical College 1923. F.A.C.P. Formerly Assistant Psychiatrist, St. Elizabeth's Hospital, Washington, D. C. Fellow of the National Committee for Mental Hygiene at the Institute for Child Guidance, New York City. At Present, Chief, Division of Mental Hygiene, Connecticut State Department of Health. His subject is: "Mental Hygiene in a Public Health Program." Page 1237. Address: 8 Washington Street, Hartford, Conn.

FINLAND, MAXWELL. B.S., M.D. Harvard 1926. Assistant Resident, Thorndike Memorial Laboratory, Boston City Hospital and Assistant in Medicine, Harvard Medical School. Formerly, Pneumonia Resident, Boston City Hospital and Charles Follen Folsom Teaching Fellow in Hygiene, Harvard Medical School. His subject is: "The Serum Treatment of Lobar Pneumonia." Page 1244. Address: Boston City Hospital, Boston.

JACOBY, RUDOLPH. M.D. Boston University School of Medicine 1911. Assistant Dermatologist, Massachusetts Memorial Hospitals. Chief, Department Syphilis, Massachusetts Memorial Hospitals. Assistant Professor of Dermatology and Syphilology, Boston University School of Medicine. Consulting Dermatologist, Quincy City Hospital. Address: 270 Commonwealth Avenue, Boston. Associated with him is:

GRUND, JACOB L. M.D. Harvard 1921. Assistant in Dermatology and Syphilology, Boston University School of Medicine and Massachusetts Memorial Hospitals. Address: 483 Beacon Street, Boston. Their subject is: "Endothelioma Cutis, Naevo-Nantho-Endothelioma: Report of a Case." Page 1247.

LYNCH, FREDERICK J. S.B., M.D. Harvard 1919. Assistant Professor of Gynecology, Tufts College Medical School. Assistant in Gynecology, Harvard Medical School. Obstetrician. Cambridge City Hospital. Junior Visiting Surgeon for Gynecology and Obstetrics, Boston City Hospital. His subject is: "Vulvovaginitis in Children." Page 1251. Address: 475 Commonwealth Avenue, Boston.

FAULKNER, JAMES M. A.B., M.D. Harvard 1924. Assistant in Medicine, Harvard Medical School. Research Fellow Thorndike Memorial Laboratory, Boston City Hospital. Junior Visiting Physician, Boston City Hospital. Visiting Physician, House of the Good Samaritan. His subject is: "Adams-Stokes' Syndrome in Rheumatic Fever; Report of a Case." Page 1252. Address: 264 Beacon Street, Boston.

COUES, WILLIAM PEARCE. M.D. Harvard 1894. F.A.C.S. Surgeon to Out-Patients, Massachusetts General Hospital. Consulting Surgeon, Massachusetts Eye and Ear Infirmary. Instructor in Surgery, Tufts College Medical School. His subject is: "Washington's Campaign Against Smallpox in the Continental Army." Page 1254. Address: 12 Monmouth Court, Brookline, Mass.

PUTNAM, TRACY J. M.D. Harvard 1920. Instructor in Neuropathology and Assistant in Surgery, Harvard Medical School. Visiting Physician in Neurology, Boston City Hospital. His subject is: "Recent Advances in Neurological Surgery." Page 1255. Address: Boston City Hospital, Boston.

MODERN TREND IN GENERAL PRACTICE*

BY JOSEPH GARLAND, M.D.

Ladies and Gentlemen, for I see that both are present. When our President, Dr. Greenough, invited me to speak for a limited number of minutes but with an unlimited choice of subjects, he did what might have been a very dangerous thing. It was like putting a torch in the hands of a pyromaniac, and I shudder to think of what the consequences might have been had I been a less temperate individual. As a matter of fact, however fevered my imagination might be under ordinary circumstances, I can assure you that at the present moment the temperature of my feet would have upon it the same effect as a cold pack on a typhoid patient—if we had typhoid patients.

The old landmarks of disease, however, are shifting like the dunes of Cape Cod. Fortunately for us, if not for the general public, they are not being levelled and obliterated but are changing only in form and place. Imagine our plight if they did not arise somewhere in another shape! Our practice would be reduced to that most pitiable of trades, preventive medicine! We might be forced, even, to perform the health examination between jabs of the immunizing

*An after-dinner speech at the annual banquet of the Massachusetts Medical Society.

needle, in order to eke out a precarious livelihood.

But the Lord still cares for his flock. Typhoid fever, it is true, is a comparative stranger among us, but in its place we have undulant fever which lasts much longer; malaria is almost unknown; we have encephalitis to take its place; a benevolent legislature has banished smallpox; we now have psittacosis which must not be confused with epidemic parotitis and the automobile can easily replace both diphtheria and the summer complaint of infancy as a cause of morbidity.

When I think of the subjects upon which I might have discoursed tonight, I can only remind you of the sacred soil on which we are met, for it was here that the first prayer of Thanksgiving went up.

I might lecture exhaustively, if not learnedly, on prohibition and the merits of the Literary Digest poll, with particular reference to the doctors and lawyers, the educators and the clergymen. I shall spare you this ordeal. I might talk upon Pediatrics, for which I have a passing fancy, or upon Podiatry, which is not the same thing, despite the general conception of the so-called laity. I might discuss medical education, or the cost of medical care, two burning issues, on which, knowing little, I might talk long. I might hold forth about the *New England Journal of Medicine*, which is a hobby of mine, if Dr. Bowers were not present, but I am dumb in the presence of my betters and he might confront me with the editorial which I promised, but did not write. I might discuss again the relations of the doctor to the new hospital for people of moderate means, which not enriches them, but makes him poor indeed. I might dilate upon the sesquicentennial celebration of our Society next year—the oldest in continuous existence in the country—I even considered bursting into verse for your benefit. But Dr. Lund is the crowned laureate of the Society, and I am no poet. In short, the possibilities of subjects seemed inexhaustible.

Perhaps, being a practitioner of medicine, I am too conservative and a certain type of conservatism, not necessarily related to modesty represents one of the greatest dangers with which we are confronted. Individualists we have always been, and individualists we always will be, but we need not be so individualistic as to lose our capacity for concerted effort. One of the greatest enemies of our group progress has been this inability to engage in teamwork, and a jealousy of the agencies which are working to the same end as we are—public health, lay and social agencies. We sometimes hold up our heads too high, forgetting that the broader our experiences, the greater is the opportunity to show our fallibility. We have not always walked with humility.

It is gatherings such as these which help to broaden us a little in each other's sight; to extend our viewpoints; to quicken our perceptions and to place us in proper relationship to each other and to those whose guides we should be. We must be to our neighbors as Knowledge in the old English moral play, who said, "Everyman I will go with thee and be thy guide, In thy most need to go by thy side."

It takes but little vision to see that a better type of medical practice—a higher level of medical service—is before us, and there will be less dust in the front of the procession than in the rear.

My allotted time and my possible subjects being exhausted simultaneously, I shall close by urging you all, on behalf of the committee of which I am not chairman, and for which I have no authority to speak, to attend the sesquicentennial of our Society in Boston next year.

MISCELLANY

WEEKLY HEALTH INDEX

Telegraphic returns from 64 cities with a total population of thirty million for the week ending June 7, indicate a mortality rate of 13.0 as against a rate of 12.1 for the corresponding week last year. The highest rate (24.4) appears for Trenton, N. J., and the lowest (6.4) for Yonkers, N. Y. The highest infant mortality rate (236) appears for Oklahoma City, Okla., and the lowest for Erie, Pa., New Haven, Conn., Somerville, Mass., Tacoma, Wash., and Utica, N. Y., which reported no infant mortality.

The annual rate for 64 cities is 13.6 for the twenty-three weeks of 1930, as against a rate of 14.8 for the corresponding weeks of 1929.

STUDIES IN NATURAL ILLUMINATION IN SCHOOL ROOMS BY THE UNITED STATES PUBLIC HEALTH SERVICE

The Public Health Service for some time past has been conducting studies in natural illumination in school rooms. A report (Public Health Bulletin No. 188) recently issued deals with the effect of clouds on daylight illumination and on daylight ratios.

The science of lighting rooms by means of daylight has not kept pace with the science of artificial illumination. The fact that daylight is abundant and costs nothing has perhaps led to the delay in the development of the principles underlying the proper utilization of daylight.

This lack of knowledge of the present condition of the natural lighting of schools and factories has in recent years led to an intensive study of the actual conditions prevailing, and to a study of the principles underlying good daylighting. The United States Public Health Service is engaged in such a study. A preliminary report on the natural lighting of schools was published as Bulletin No. 159, and a second report, Public Health Bulletin No. 188 has recently been published.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS, MAY, 1930

GENERAL PREVALENCE

The total number of cases reported for May, 1930, was considerably above that of the previous year, due in a large part to the greater prevalence of measles, German measles and whooping cough.

Diphtheria continued considerably less prevalent than in previous years. Typhoid fever and non-pulmonary tuberculosis reached new low figures for the month. The reported incidence of scarlet fever, anterior poliomyelitis and influenza were similarly somewhat low.

The reported incidence of measles and German measles continued high, due almost entirely to the prevalence in or around the Metropolitan area. During the middle of the month epidemic meningitis was much more prevalent in all parts of the state but practically disappeared by the end of the month. Whooping cough was reported slightly above expected frequency.

The reported incidence of lobar pneumonia, pulmonary tuberculosis, chickenpox and mumps was within endemic limits.

The increased reporting of gonorrhea and syphilis, coincident with the change in regulations, was even more noticeable during the past month, as compared with reports in the same month for past years.

RARE DISEASES

Anterior Poliomyelitis was reported from Boston, 3; Hadley, 1; Mansfield, 1; total, 5.

Encephalitis lethargica was reported from Northampton, 5; Springfield, 1; total, 6.

Epidemic cerebrospinal meningitis was reported from Adams, 1; Arlington, 1; Belmont, 1; Boston, 9; Braintree, 1; Cambridge, 1; Chelsea, 1; Everett, 1; Fitchburg, 1; Holliston, 1; Holyoke, 1; Lawrence, 2; Leominster, 1; Ludlow, 1; Malden, 1; Melrose, 1; Methuen, 1; Northampton, 1; Reading, 1; Revere, 1; Westfield, 1; Worcester, 3; total, 33.

Septic sore throat was reported from Boston, 13; Cambridge, 1; Fitchburg, 1; Lynn, 1; Springfield, 1; Watertown, 1; Winchester, 1; total, 19.

Tetanus was reported from Framingham, 1; Lawrence, 1; Lexington, 1; Worcester, 1; total, 4.

Trachoma was reported from Arlington, 1; Boston, 1; Springfield, 1; total, 3.

Undulant fever was reported from Boston, 1; total, 1.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES.

	Cases in Entire Population				Case Rates per 100,000 Pop.		
	May 1930	May 1929	Prosodemic Index	Epidemic Index	May 1930	May 1929	Expected Rates***
ALL CAUSES	14,554	8,725	-	-	328.0	199.2	-
Ant. Poliomyelitis	5	8	6*	.8**	.1	.2	.1
Diphtheria	236	315	288*	.8**	5.3	7.2	6.5
Ep. c. s. meningitis	33	18	9*	3.7**	.7	.4	.2
Measles	6448	2589	6535*	1.0**	145.4	59.1	147.3
Pneumonia, Lobar	416	392	409*	1.0**	9.4	8.9	9.2
Scarlet Fever	947	1005	1267*	.7**	21.3	22.9	28.6
Tuberculosis, Pul.	495	409	502*	1.0**	11.2	9.3	11.3
Typhoid Fever	13	34	19*	.7**	.3	.8	.4
Whooping Cough	1171	748	977*	1.2**	26.4	17.1	22.0
Chicken Pox	848	918	-	-	19.1	21.0	-
German Measles	1373	196	-	-	30.9	4.5	-
Gonorrhea	537	390	-	-	12.1	8.9	-
Influenza	12	32	-	-	.3	.7	-
Mumps	667	519	-	-	15.0	11.8	-
Syphilis	375	147	-	-	8.5	3.4	-
Tuberculosis, O. F.	46	80	-	-	1.0	1.8	-

* This Index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

** This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in the August 18, 1927 issue of the Boston Medical and Surgical Journal.

*** Calculated from the Prosodemic Index.

NATIONAL SOCIAL WORK CONFERENCE

Five thousand four hundred and three social workers from all parts of the United States and eleven foreign countries were registered at the National Conference of Social Work and its Associated Groups in Boston from June 6 to 14. Four hundred meetings were held within the nine-day period. The speakers included leaders in the fields of public health, penology, family case work, delinquency, mental hygiene, industrial and economic problems from the welfare standpoint, children, public welfare administration, immigration, neighborhood and community life and professional training.

Dr. Richard C. Cabot presided at the opening general session on Sunday evening, June 8, in the absence of Rt. Rev. Bishop William Lawrence, Chairman of the Boston Committee, who was unable to be present because of illness. Miss Miriam Van Waters, Ph.D., Referee of the Juvenile Court of Los Angeles County, California, and President of the Conference until the election of her successor on June 13, was the speaker at the opening session, her topic being "Philosophical Trends in Social Work". Miss Van Waters presided at the other general sessions held at the Garden on June 9, 10 and 13.

Hon. George W. Wickersham, former United States Attorney General and Chairman of President Hoover's Commission on Law Observance and Enforcement, spoke on June 9 on "Law Observance". Professor Wesley C. Mitchell, Director of the Bureau of Economic Research and Chairman of President Hoover's Research Council on Social Trends, spoke on June 10 on "The Economic Basis for Social Progress". Miss Jane Adams, Founder and Head Resident of Hull House, Chicago, and Rev. Francis J. McConnell, President of the Federal Council of Churches of Christ in America, were the speakers at the Garden on June 13. Miss Adams' topic was "The Social Worker and Other Professions". Bishop McConnell's topic was "Voices of the Times".

Of the twelve general divisions of the Conference, that on Public Health, technically known to the Conference as Health, was of most interest to physicians, nurses and lay workers in the health field attending the Conference. Ira V. Hiscock, Associate Professor of Public Health, Yale School of Medicine, was the Chairman of this division. The following is a summary of the program:

Clinics as Centers of Health Education
- Iago Galdston, M.D., New York Academy of Medicine
- Evart G. Routzahn, Russell Sage Foundation

Social Case Work and the Prevention and Treatment of Syphilis and Gonorrhea
- W. F. Snow, M.D., General Director, American Social Hygiene Association

Progress in Tuberculosis Control
- Robert B. Kerr, M.D., New Hampshire Tuberculosis Association
- Sumner H. Remick, M.D., Director of Tuberculosis, Massachusetts State Department of Health

Relationship between Hospital Social Service and Public Health Nursing
- Marguerite Spiers, Director, Medical Social Service Department, Berkeley Health Center, California
- Laura A. Draper, Assistant Director, Community Health Association, Boston
- Charles F. Wilinsky, M.D., General Director, Beth Israel Hospital, Boston
- Bess Medary, Director of Social Service, Rhode Island General Hospital, Providence

Minimum Health Knowledge and Professional Attitudes on Health Problems
- Howard W. Green, Secretary, Cleveland Health Council, Cleveland
- Antoinette Cannon, New York School of Social Work, New York
- Virginia Wing, Executive Secretary, Anti-Tuberculosis League, Cleveland

A Program for Hard of Hearing Children
- Mrs. James F. Norris, Boston

The Care of Chronic Diseases
- Ida M. Cannon, Chief of Social Service, Massachusetts General Hospital
- Herbert L. Lombard, M.D., Massachusetts Department of Health
- George H. Bigelow, M.D., Massachusetts Department of Health
- Shields Warren, M.D., Huntington and Palmer Memorial Hospitals

The Health Survey as a Social Instrument
- C.-E. A. Winslow, Dr.P.H., Yale School of Medicine, New Haven

The Appraisal of Health Work
- Huntington Williams, M.D., Dr.P.H., State Department of Health, Albany, New York
- Bleecker Marquette Executive Secretary, Public Health Federation, Cincinnati
- George Hamilton, Executive Secretary, United Welfare Fund, Honolulu, Hawaii

What we Know about Heredity and Environment
- Benjamin C. Gruenberg, M.D., New York City

What Is Practical in Race Improvement?
- T. Wingate Todd, M.D., Brush Foundation, Western Reserve University, Cleveland
- William Healy, M.D., Institute of Human Relations, Yale University, New Haven

Local arrangements for the Conference were in charge of a State-wide Committee headed by Rt. Rev. William Lawrence, D.D.

Hon. Richard K. Conant, Commissioner of Public Welfare, was Chairman of the Committee on Organization; Alfred F. Whitman, Chairman of Committee on Headquarters; Parker B. Field, Chairman of Committee on Halls and Meeting Places; George C. Greener, Chairman of Committee on Hospitality; Miss Helen Morton and Miss Marjory C. Warren in charge of Information and Registration, Mrs. Eva Whiting White, Chairman of Committee on Membership; Mrs. Alfred J. Rowan, Chairman Committee on Music and Frank Kiernan, chairman of Committee on Publicity.

OCCUPATIONAL POISONING AND HAZARDS FROM CERTAIN FORMS OF SHOE DRESSINGS

By Charles D. Howard

Cases of illness believed to be due to preparations used at a shoe shop were brought to the attention of the New Hampshire Board of Health in March by a health officer, who submitted for examination a number of specimens of fluids under suspicion of being responsible. These preparations are used in the manufacture of white shoes. As, almost simultaneously with this complaint, a similar one was received from a shop situated in another part of the state and also involving the use of white shoe dressings, the matter was deemed worthy of a special inquiry.

In both instances the illnesses were described as involving headache, giddiness, nausea, and in some instances the vomiting of bile, and collapse while at the bench. Disability continued for a day or two, and upon return to work there were recurrences of the ailment. While some were but slightly affected, others were out, off and on, persistently, in one case this being said to have continued for several weeks. Two workers were said to have abandoned this line of employment in consequence. All were engaged upon white shoe work. No disturbances of vision were reported.

In connection with the investigation made, 23 shops, located in six cities and towns, were visited. Conditions as regards ventilation were noted, the various preparations employed were casually examined for their general character, and 21 samples were taken for analysis. Interrogations were also made as to the occurrence of illnesses. At most of the shops there were prompt denials on the part of the superintendent or foreman that there had been any sickness and there was, naturally, some reluctance in evidence on the part of the employees to discuss the matter, although a number of these did not hesitate to state that there had been at times cases such as here described.

Aside from the two shops involved by the complaints, it was admitted by the officials in a number of instances that they had occasionally had a little trouble of this kind, but nothing apparently of serious or any extensive nature. A few acknowledged that they had had reason to become suspicious of certain preparations, and in consequence had ceased using them. It was also pointed out that—as is well known—some workers have an idiosyncrasy which causes them to be affected by the vapors of certain fluids, generally recognized as not appreciably toxic in the atmospheric concentrations such as would exist under these conditions, and which seem to in nowise disturb the average worker.

At one of the shops it was admitted that every one of the employees engaged in the dressing of white shoes — a dozen or more — had recently been acutely ill with the symptoms referred to, which cases promptly ceased with the installation of a ventilating fan and the adoption of a different make of "cleaner". At the other shop involved there had been eight cases of this character during the week prior to this inspection, and seven in the week preceding that. While the manager protested that "the same cleaner" had been used for the past eight years, with no trouble hitherto, the latter was not borne out by the statements of some of the employees, and it was also pointed out by the foreman that during the past few weeks more white shoes had been manufactured than in any similar period hitherto.

It should be noted that these sicknesses occurred at the season of the year when, with the winter heating still on, the outside temperature had moderated extensively, although still too cold to render working by an open window comfortable. Under the circumstances rather high shop temperatures tended to prevail at this time, and atmospheric conditions were not so good as they doubtless would be either during the normal winter weather or with the arrival of the summer season. For the most part, conditions as regards ventilation were found to be fair to very good, that of a number of the shops of modern type being excellent. In a few, involving notably some of the older wooden buildings of non-modern construction, the air was oppressive, the conditions in this respect being poor.

In a few instances ventilating fans were found in use, and undoubtedly such use could, with profit to the workers, be materially extended, particularly in those rooms where volatile fluids are utilized. While the inspection included a number of shops found to be entitled to special commendation in this connection, it will suffice to mention here but one, which particularly impressed us.

At most of the shops rules against smoking are rigidly enforced. At a few, however, mostly small ones, this indulgence is permitted to the operatives, and it so happens that where such practice was observed the conditions as regards fire hazards in other respects were maximum. In view of the very general use in the treeing rooms of inflammable fluids, and the extreme crowding of the aisles with shoe racks, as noted at a number of the shops, the fire risk and attendant hazard to life would seem to be substantial, although it has not appeared that shoeshop fires are frequent. One large shop in this state was, however, thus destroyed recently, the town losing its only manufacturing industry.

At a few shops the use of small hand torches in connection with one stage of the finishing was observed. At all of those where the spray process of application was found employed, special draft hoods are provided.

The investigation showed that a considerable variety of volatile fluids is involved in this work, many of these being highly inflammable, and some of them recognized as toxic in character. Denatured alcohol and carbon tetrachloride are common. The latter while itself non-inflammable, is generally mixed in varying proportions with one or more other fluids that are inflammable, such as

naphtha, ether, acetone and alcohol, and occasionally carbon disulphide and benzene (benzol). The two latter, however,—the vapors of which are quite toxic—are more generally employed on rubber work. No preparation containing benzene was encountered in this investigation, and but one was found containing carbon disulphide, although all of the samples containing volatile substances were examined for this compound by a test found to be readily capable of detecting as little as one per cent. At some of the shops preparations containing amyl acetate (banana oil) were found in use. An apparently popular combination, sometimes mixed by the operator himself, is one involving carbon tetrachloride, naphtha, and denatured alcohol or acetone, in equal parts. Most of the carbon tetrachloride-containing preparations encountered were, despite the presence of this compound, very inflammable, although with a few ignition did not occur until slightly warmed.

Authorities recognize that the inhalation of various volatile substances, when in substantial concentration, can serve to produce definite manifestations of poisoning. Thus naphtha causes an intoxication not unlike that due to alcohol, known industrially as "naphtha jag". Common ether, inhaled in quantity, produces a similar intoxication and in those regularly exposed to its vapors there are evidences of health impairment after a few months, particularly in women. Amyl acetate (banana oil) tends to produce irritation of the eyes and of the mucous membranes of the nose and throat, also headache and dizziness, but is not regarded as seriously toxic.

The vapors of carbon disulphide and of benzene (benzol) are, even in low concentrations, actively poisonous, and workers exposed to these vapors soon experience grave health impairment. Continued inhalation of undiluted methyl (wood) alcohol by workers produces headache, nausea and vomiting, together with the characteristic disturbance of vision. However, what is sold under the name of completely denatured alcohol now contains but four per cent. of methanol, and in this concentration exposure to the vapors is not likely to have serious consequences. Acetone seems to be given a clean bill of health by the authorities, although two workers assured the writer that they find the fumes of this compound more disagreeable than those of either naphtha or carbon tetrachloride, and that they will not employ this if avoidable.

Carbon tetrachloride is not mentioned in the earlier works on toxicology and occupational poisoning, and it seems to be since the war that its toxic properties have come to be recognized. This is due largely to the fact that it is only within the past decade that tetrachloride has come into extensive industrial use, having now practically supplanted the much more poisonous and very highly inflammable carbon disulphide. At first it was assumed that poisonous manifestations from tetrachloride might be due to disulphide, present as an impurity. Apparently, however, that as now manufactured is practically free from this compound. At least, none of the samples examined in connection with this investigation showed any substantial traces of this contamination.

One death is known to have resulted from the use of a hair shampoo containing tetrachloride. The latter is recognized as having a narcotic action similar to chloroform, but in addition causes convulsions and is said to be more injurious to the heart, as well as having a more destructive effect upon muscle. Some experiments by Waller and Veley showed it to have double the toxicity of chloroform. According to Lehmann, workers using tetrachloride may suffer from mental dullness, confusion and anesthesia, but in many factories where there is good ventilation no ill effects have been noted. It is more irritant to the respiratory tract than is chloroform and workers are said to complain of irritation of the nose and throat, also of a tendency to nausea and giddiness.

There would seem to be little room for question that of the four solvents most commonly employed by shoe workers—ether, naphtha, acetone and carbon tetrachloride—the latter is distinctly the most toxic, and the long continued inhalation of its vapors under poor conditions of ventilation can safely be held responsible for the manifestations cited at the beginning of this article. At one of the shops involving a complaint, it was noted that as many as 21 employees were engaged in the treeing room at the operation of white shoe finishing. Windows were all closed against these men and the air was oppressive. Two days prior to the inspection the use of the tetrachloride cleaner had been discontinued, but the odor of this compound in the packing room, where a considerable quantity of tetrachloride-cleaned stock was awaiting shipment, was noted as pronounced.

In conclusion, it can be stated that the illnesses referred to were directly in consequence of the use of preparations containing carbon tetrachloride, with poor ventilation as a contributing cause.

While the use of this compound should present some advantage as tending to offset the fire hazard due to such substances as ether and naphtha, yet the combinations as at present actually employed are in most cases quite inflammable.

In general, the use of tetrachloride is to be discouraged, where found avoidable. In no case should preparations containing this compound be employed in the absence of efficient ventilation. For the latter purpose the use of a fan system would seem to be called for, and this should be provided anyway in those shops where the natural ventilation is poor.

The use of special type closed working containers for fluids the vapors of which are inflammable or toxic should be extended as far as practicable, and the open pans abandoned.

Where there are occurrences of illness while at work, these should be accepted by the management as affording ground for suspicion that the ventilation is defective, or some other working condition faulty. Managements are liable at law for the maintenance of working conditions which may cause health impairment.

Crowding of the aisles such as to render hasty exit of the employees impossible in emergency should be avoided.

While not apropos to the subject, the writer feels it may not be improper to refer in this article to a feature of the shoes as being today manufactured for women. In the course of this investigation thousands of shoes were noted, the stilt-like heels of which gave cause for wonder if, after all, the Chinese could have been any more barbarous in their abuse of their women's feet than are the style arbiters who dictate what the woman of so-called civilization of today shall wear on her lower extremities, shoes the heels of which are the highest and most pointed in the history of modern shoe manufacture,—albeit we were assured by one manufacturer that the extreme pointed toe, which seems to be an accompaniment to the pointed heel, "does not sell" west of Pittsburgh. Can it be that our Western sisters are more sensible? To say nothing of the danger of accident from these "hooked" heels, the persistent wearing of such shoes cannot fail to do other than lay up future trouble for the wearer. But, disrespecter of hygiene and common-sense that she is, Dame Fashion has decreed, and so it must be.—*Bulletin New Hampshire State Board of Health.*

AN ACT WHICH WAS PASSED BY THE NEW JERSEY LEGISLATURE

CHAPTER 72

An Act to provide for liens in favor of hospitals and other charitable institutions furnishing care, treatment, and maintenance of persons injured in accidents, upon the rights of action, claims or demands of such injured persons against other persons or corporations for damages on account of negligence causing the injuries and upon the proceeds of the settlements of any such claims or demands.

PREAMBLE

Whereas, It is a common occurrence for persons injured in accidents to be taken to hospitals, there to receive care and treatment for their injuries, and to be maintained during such care and treatment, and subsequently for such injured persons, or their estates, to make settlements of their claims and demands against the persons or corporations whose negligence is claimed or alleged to have caused the accident, and to collect the amounts of such settlements, without paying the hospital charges; and

Whereas, In such cases it seems fair and reasonable that such hospital charges should be paid out of the proceeds of any such settlement, or out of any judgment or award recovered by the injured person, his or her estate, against the person or corporation held to be liable for the injuries received in the accident; therefore

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

HOSPITALS ENTITLED TO COLLECT FOR SERVICES IN ACCIDENTS

1. Every charitable association, corporation or other institution maintaining a hospital in the State of New Jersey supported in whole or in part by private charity, shall be entitled to a lien upon any and all rights of action, suits, claims, counterclaims or demands of any person admitted to any such hospital and receiving treatment, care and maintenance therein, on account of any personal injuries received in any accident as the result of the negligence of any other person or corporation, which any such injured person may or shall have, assert or maintain against any such other person or corporation for damages on account of such injuries, for the amount of the charges of such hospital for such treatment, care and maintenance.

LIEN ATTACHED

2. The lien of any such hospital shall attach to any verdict, report, decision, decree, award, judgment or final order made or rendered in any action or proceeding in any court of record of New Jersey, or any public board or bureau, in any suit, action, or proceeding brought by such injured person, or by the estate of such injured person in case of deaths as the result of such injuries, against any other person or corporation for the recovery of damages or compensation on account of injuries received in any such accident, as well as to the proceeds of any settlement thereof, or the settlement of any such claim or demand effected by any such injured person with any other person or corporation whose negligence is claimed or alleged to have been the cause of the said accident or effected with any other person or corporation on account thereof.

LIEN HAS PRIOR RIGHT—JUDGMENTS, ETC., IN FORCE—PROVISO

3. No release of any claim or demand on account of any such injuries, or in respect of any such verdict, report, decision, decree, award, judgment or final order, made or rendered as hereinbefore mentioned, executed by any such injured person, or by his or her estate, shall be valid or effectual, between the parties thereto or otherwise, unless, prior to the execution and delivery thereof, all such charges of any such hospital or institution shall have been paid in full, or to the extent of the full and true consideration paid or given to the injured person by the other party or parties to such release named therein, or paid or given by any other person or corporation in behalf of such other party or parties, and unless such release shall also have been executed by the corporation, association or institution maintaining such hospital; and every such verdict, report, decision, decree, award, judgment or final order shall remain in force and effect until all such charges of any such hospital or institution shall have been paid in full, or to the extent of any such verdict, report, decision, decree, award, judgment or final order; *provided*, that a notice containing the name of the injured person, the date of the accident and the amount of such hospital charges shall be filed within three months after the date of the accident by such corporation, association or institution in the office of the clerk of the

county in which such hospital or institution is situated.

COUNTY CLERK TO KEEP HOSPITAL LIEN DOCKET

4. Every county clerk shall, at the expense of the county, provide a suitable, well-bound book, to be called the hospital lien docket, in which, upon the filing of any lien claim under the provisions of this act, he shall enter:

ENTRIES

The name of the injured person, the date of the accident, the name of the hospital or other institution making the claim, and the amount thereof.

INDEX—FEES

And the said clerk shall make a proper index of the same in the name of the injured person; and such clerk shall be entitled to twelve cents for filing each claim, and at the rate of eight cents per folio for such entry made in the lien docket and six cents for every search in the office for such lien claim.

5. This act shall take effect immediately.

Approved April 7, 1930.

CORRESPONDENCE

THE LIABILITY OF A PHYSICIAN IN MALPRACTICE SUITS

New Haven, Conn.,
June 11, 1930.

Editor, *New England Journal of Medicine*:

You may be interested in the enclosed. The rules are based on opinions written by eminent judges, notably W. H. Taft when he was a Federal judge in Ohio.

I arranged them for my committee but it struck me they contained information valuable to every doctor, so I am sending them to each of the members of our Association.

Sincerely,
FRANK H. WHEELER.

SOME RULES APPLICABLE IN CASES OF ALLEGED MALPRACTICE*

Rule 1. A physician or surgeon is not a warrantor of cure in the absence of an express contract to that effect. His implied obligation arising from his employment is only, that no injury shall result from any want of care or skill on his part.

Rule 2. The care and skill exercised by the physician or surgeon must be not less than that used by the average physician or surgeon practicing in the same community.

Rule 3. The methods used by a physician or surgeon are legal, provided they are the methods used by a majority, or by a respectable minority, of the physicians or surgeons in that community at that time.

*Compiled by Frank H. Wheeler, Chairman, Committee on Medical Ethics and Deportment. New Haven Medical Association.

Rule 4. In order to recover damages from a physician or surgeon for want of proper care and skill, the plaintiff must show:

(1) that an injury was caused.
(2) that the defendant was unskillful or negligent.
(3) that the injury was produced by the unskillful or negligent act of the defendant.

Corollary, mere negligence or lack of skill without injury gives no right to recover even nominal damages.

Rule 5. When the burden of proof is on the plaintiff to show that an injury was caused by the negligence of the defendant, it is not enough to show the injury, together with expert opinion that it might have occurred from negligence and other causes. Such evidence has no tendency to show the negligence did cause the injury.

AN INCORRECT RUMOR CONCERNING THE ROXBURY HOSPITAL

Roxbury Clinic,
87 Vernon St.,
Roxbury, Mass.,
June 21, 1930.

New England Journal of Medicine,
165 Newbury St.,
Boston, Mass.

Attention: Editor.

Dear Sir:—

There has been a general rumor to the effect that the Roxbury Hospital, located at 87 Vernon Street, Roxbury, has been closed.

We wish that you would help us correct this rumor through the profession by calling attention to all that are interested, that this institution is not closed, but has been reorganized under the name of Roxbury Clinic; the same staff is functioning as usual at the same quarters.

We also wish to call attention to the fact that we have a supply of radium that can be used on any patients the doctors think should have that form of treatment, that they may wish to refer to us.

Yours very truly,
MAX BENNETT, M.D.,
Secretary of Staff.

THE CHANGE IN THE MODE OF FREE DISTRIBUTION OF BIOLOGICAL AND ARSENICAL PRODUCTS

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

June 19, 1930.

Editor, *New England Journal of Medicine:*

On or after July 1, 1930, all biological and arsenical products will be distributed from the Antitoxin and Vaccine Laboratory, 375 South Street, Jamaica Plain, telephone Jamaica 4127. Arrangements have been made for the quick delivery of these products and it

is requested that all orders for biologicals and arsenicals be sent to the above address.

In order that physicians may receive products in the highest state of their potency and that we may keep to a minimum the cost of production by eliminating waste due to the return of outdated and unused materials, it is earnestly requested that all orders be limited to amounts, not exceeding a two weeks' supply. A small emergency stock of biological products will be kept as heretofore in the Bacteriological Laboratory at the State House, but no routine orders will be filled from that place.

Although we expect some confusion to take place in the early days of this change, we are confident that by concentrating our distribution from one point, a more rapid and satisfactory service will be furnished to physicians.

Diagnostic outfits, as heretofore, will be distributed from Room 527, State House, telephone Haymarket 4600.

Cordially yours,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

RECENT DEATH

CHANDLER—Word has been received of the death in the Brooklyn State Hospital of the Senior Assistant Physician of that institution, DR. CLARENCE LUTHER CHANDLER, on May 17, 1930. Acute myocarditis was the cause of his death at the comparatively early age of 50.

Dr. Chandler was a graduate of Tufts College Medical School in 1904 and settled in Fitchburg at once, joining the Massachusetts Medical Society the following year. He was appointed assistant physician to the Brooklyn State Hospital, Department of Mental Hygiene, State of New York, July 1, 1923 and advanced to be senior assistant physician in 1928. He performed his duties faithfully during his term of service and was greatly admired and respected by the patients, employees and fellow officers, not only for his ability as a physician, but for the many sterling qualities of his personality.

NEWS ITEMS

BOSTON UNIVERSITY SCHOOL OF MEDICINE—Among the fourteen hundred and eighty-five graduates of the University forty-seven were awarded the degree of Doctor of Medicine. The names of the graduates in medicine are as follows:

Harry Archer Berman, S.B., Mary Margaret Blair, S.B., Harvey Joseph Bourassa, Charles Leo Brennan, Ph.G., S.B., Francis Crowell Buckley, Harold Burger, S.B., William Garrett Christoffersen, Philip Cirincione, S.B., Adolph Edward Citron, S.B., Gerald Joseph Curreri, A.B., Benita Coolidge Davenport, A.B., Armand DeRosa, S.B., Paul Dranow, Francis Joseph Charles Dubé, A.B., Paul Esmond Dunn, A.B., Nathan Leonard Fineberg, S.B., Alphonse Lodovic Forziati, Ph.G., Bernard Goldblatt, S.B., Leslie Samuel Harrison, A.B., Chester Frederick Hogan, Thomas Hunter, A.B., Roderick Lowell Huntress, Laura Gertrude Jacques, S.B., Isadore Harry Jaffee, A.B., Edward William Howard Lagerstedt, A.B., Carl Victor Lendgren, S.B., Joseph Ernest Marien, A.B., Grace Rose Martus, B.S. in Ed., Alberico Mascuci, S.B., Edward Henry McCaughey, S.B., Clarence Ronald McLaughlin, S.B., Ernest Hutchinson Menges, Carlos Eduardo Munoz MacCormick, Louis Pilloni, Robert Edmund Rice, Henry Norman Rosenberg, S.B., Raymond Alphonse Tougas, A.B., John Samuel Wheeler, Percy Theodore Whitney, S.B.

Cum Laude: Herbert Kalish Bloom, Sidney Derow, Daniel Holzman, A.B., Louis Bernard Horowitz, S.B., Nathan Krinsky, S.B., Joseph Maurice Lebowich, S.B., Thor Miller, A.B., Werner Mueller, S.B.

BOSTON HEALTH LEAGUE WILL HOLD ITS MEETINGS AT THE BOSTON MEDICAL LIBRARY—The Boston Medical Library has for many years served as a central meeting place for the Medical Societies of Greater Boston and, in this way, assumes the functions of an Academy of Medicine. In connection with this, it is now interesting to note that the Boston Health League has arranged to hold its regular monthly meeting at the Library and finds that the library rooms are better adapted than its old quarters in down-town Boston.

THE PSYCHIATRY OF OUR COLONIAL FOREFATHERS—Dr. Smith Ely Jelliffe of New York, as his Presidential Address before the American Neurological Association held in Atlantic City, June 9, 10, 11, 1930, spoke on the topic "The Psychiatry of Our Colonial Forefathers".

THE BOSTON ANAESTHESIA SERVICE—Dr. George Colton Moore and Dr. N. N. Morse have been added to the membership of the Boston Anaesthesia Service.

DR. RICHARD C. CABOT HEADS NATIONAL SOCIAL WORK CONFERENCE—Dr. Richard C. Cabot, head of the Department of Social Ethics of Harvard was elected President of the National Conference of Social Work during its recent meeting in Boston. Dr. Cabot was graduated from Harvard College in 1889 and holds a professorship in medicine at Harvard.

C. M. Bookman, Director of the Community Chest and Council of Cincinnati was elected first Vice-President, Jane M. Hoey of the staff of the New York Welfare Council, second Vice-President, and Harry L. Lurie, Director of the Jewish Social Service Bureau of Chicago, third Vice-President, Howard R. Knight, Columbus, Ohio, General Secretary and Charles C. Stillman, Columbus, Ohio, Treasurer.

The 1931 meeting of the Conference will be held in Minneapolis. The Boston meeting eclipsed all records for attendance, the total registration reaching 5,403.

DR. VIETS ACCEPTS ASSIGNMENT—Dr. Henry R. Viets is giving a series of lectures at the Summer School Clinic of the Vancouver Medical Association, June 24-27.

NOTICES

DEFICIENT POSTAL SERVICE

Slips from the Mailing House show that the postal cards sent by the Committee of Arrangements regarding the Plymouth meeting were in the mail not later than June 10. It has been reported to us, however, that some of these cards were not received earlier than June 18.

CORRECTION

The appointment of Dr. Kenneth J. Tillotson as Superintendent of McLean Hospital was reported in our *Journal* of June 12. It was incorrectly stated that Dr. Tillotson graduated from the University of Vermont Medical School in 1929. Dr. Tillotson graduated from the above-named University in 1921.

DR. DEWITT G. WILCOX WILL MOVE HIS OFFICE

Dr. DeWitt G. Wilcox desires to announce the removal of his office from 490 Commonwealth avenue to his residence, 132 Homer street, Newton Centre, July 1, 1930.

UNITED STATES CIVIL SERVICE EXAMINATION

Senior Medical Technician (Pathology), $2,000 a Year

Applications must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than July 9, 1930.

The United States Civil Service Commission announces an open competitive examination for the position named above. Vacancies in the Office of the Surgeon General, War Department, for duty in Washington, D. C., and in positions requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Salary and promotion—The entrance salary for this position is shown above. A probationary period of six months is required; advancement after that will depend upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions.

Citizenship and sex—This examination is open to all citizens of the United States who meet the requirements; the department or office requesting certification of eligibles has the legal right to specify the sex desired.

Duties—The duties will be to perform, under general supervision but with the exercise of independent judgment, responsible research work in histological pathology, which embodies the preparation of tissues for microscopical examinations, the making of stains and research on staining methods.

Basis of ratings—Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience, on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

Minimum requirements—Applicants must meet the following education, training, and experience requirements:

1. *Education and training*—

(a) Graduation from a standard high school or the completion of 14 units of college entrance work, provided that applicants who do not meet this requirement but who are otherwise qualified, will be given a noncompetitive mental test in which nonpreference applicants will be required to attain a rating of at least 50, applicants entitled to military preference a rating of at least 45, exclusive of military preference credit, and applicants entitled to disability preference a rating of at least 40, exclusive of military preference credit. This mental test will require 1 hour and 15 minutes. Applicants for whom this test is required will be notified of the date and place thereof.

(b) Graduation with a bachelor's degree from a college or university of recognized standing, with major work in some branch of biology, chemistry, or physics.

2. *Experience*—All experience must be postgraduate: For applicants qualifying under (a) of the education and training requirement, at least four years of active full-time laboratory experience, and for applicants qualifying under (b) at least one year of full-time histopathologic experience.

CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS

Assignment to duty in Maine:

Chemist E. J. Theriault. Directed to proceed from Cincinnati, Ohio, to Augusta, Maine, and return, in connection with stream pollution studies. June 4, 1930.

Assignment to duty in Massachusetts:

Assistant Surgeon General Walter L. Treadway. Directed to proceed from Washington, D. C., to Boston, Mass. and such other points in the State of Massachusetts, as may be deemed necessary, and return, to make studies and investigations incident to carrying into effect the provisions of the Act approved January 19, 1929.

REPORT OF MEETING

CANCER CLINIC SPONSORED BY THE PLYMOUTH DISTRICT MEDICAL SOCIETY

The beginning of the Cancer Clinic sponsored by the Plymouth District Medical Society took place at the Brockton Hospital on Thursday, June 12, 1930. In the future it will take place each Thursday morning throughout the year at 10:30 A. M. There were many physicians from the city and district, as well as some from out of the State present at this initial meeting. Dr. Walter L. Mattick, who is at-

tached to the State Institute for the study of cancer at Buffalo, N. Y. addressed the meeting. Dr. George H. Bigelow, commissioner of public health, and Dr. Lakeman of the State Department of Health were also present. There were twelve patients, men and women, present to be examined at this meeting. Some were from Brockton, others were from the surrounding towns. Among those present at the clinic were: the medical committee in charge of the clinic which included; Dr. M. Frank Barrett, Dr. Samuel W. Goddard, Dr. George A. Moore, Dr. L. B. Packard, Dr. Frank E. Hanley, Dr. F. W. Murdock. The following physicians connected with the Brockton Hospital were also present: Dr. F. M. Hollister, superintendent of the Brockton Hospital; Dr. Charles D. McCann, Dr. H. J. Lupien, Dr. William G. Walker, Dr. George A. Buckley, Dr. Edward B. Gilmore and Dr. Anthony M. Champ. The visiting physicians present were: Dr. Alfred C. Smith, Dr. A. M. Lemay, Dr. J. P. Shaw, Dr. Leo P. Crimmins, Dr. Howard C. Reed of Whitman, Dr. I. I. Richmond of East Bridgewater, and Dr. Thomas H. McCarthy, vice-president of the Massachusetts Medical Society. In the afternoon there was a meeting at the Public Library sponsored by the lay committee, which is coöperating with the cancer clinic movement. The meeting was addressed by Dr. Robert Greenough, president of the Massachusetts Medical Society, and Dr. George H. Bigelow, Massachusetts Commissioner of Public Health.

The enthusiasm shown by those present indicated that this clinic will exercise an important function in this district.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

March-October — International Medical Postgraduate Courses in Berlin. Complete notice appears on page 853, issue of October 24, 1929.

June 23-27—Annual meeting of the A. M. A. Auxiliary. Detailed notice appears on page 981, issue of May 15.

June 23-July 12—The Fourth Public Health Institute. Complete notice appears on page 839, issue of April 24.

June 24—American Heart Association, Inc. Detailed notice appears on page 934, issue of May 8.

June 30-July 19—Mental Hygiene Institute. Complete notice appears on page 1175, issue of June 12.

July 10-12—The American Association for the Study of Goiter. Complete notice appears on page 935, issue of May 8.

September 4-8—Fifth International Congress on Physiotherapy. Complete notice appears on page 906, issue of October 31, 1929.

September 8-12—Postgraduate week of Physical Therapy. Detailed notice appears on page 1025, issue of May 22.

September 26-27—New England Surgical Society. Detailed notice appears on page 1028, issue of May 22.

October 13-17—Clinical Congress of the American College of Surgeons. Complete notice appears on page 1175, issue of June 12.

October 27—The American Public Health Association. Detailed notice appears on page 1271, issue of December 19, 1929.

March 23-27, 1931 — Fifteenth annual clinical session of the American College of Physicians. Detailed notice appears on page 796, issue of April 17.

BOOK REVIEW

Diabetes. By BENJAMIN SMITH, 1930, 223 pp. D. Appleton and Co., New York. Price $2.00.

This manual was developed as an aid to the physician in treating patients rather than as a means of instructing patients. The first 20 pages are devoted to general statements about diabetes, the use of insulin and training of patients.

More than one-half the book is given to listing 252 different diets. The plan is to show the various possible diets for patients whose weights vary from 88 to 220 pounds. Seven different body weights within these limits are used and for each weight a caloric intake is computed at 25, 30 and 35 calories per kilogram body weight. Different possible combinations of carbohydrate, protein and fat are shown for each caloric level.

About one-third of the space is devoted to lists of substitute foods and recipes. These lists, affording definite information as to the kinds and amounts of foods which may be exchanged for one another, would be useful to both patient and physician. The number of diets given, however, is so large as to bewilder anyone but a physician or dietitian.

BOOKS RECEIVED FOR REVIEW

Die Chirurgie by Prof. Dr. M. Kirschner and Prof. Dr. O. Nordmann. Liferung 27. Published by Urban & Schwarzenberg.

Diseases of the Nose, Throat and Ear—Medical and Surgical by William Lincoln Ballenger. Revised by Howard Charles Ballenger. Sixth Edition. Published by Lea & Febiger. 1138 Pages. Price $11.00.

Les Régimes du Nourrisson by E. Lesné and Robert Clément. Published by Gauthier-Villars et Cie, Editeurs. 172 Pages. Price 25 fr.

The Mechanism of the Heart and Its Anomalies by Emile Geraudel. Translated, with an introduction, by Louis Faugeres Bishop and Louis Faugeres Bishop, Jr. Published by The Williams and Wilkins Company. 266 Pages. Price $10.00.

A Text-Book for Midwives by John S. Fairbairn. Fifth Edition. Published by Humphrey Milford, Oxford University Press. 369 Pages.

Manual of Physical and Clinical Diagnosis by Otto Seifert and Friedrich Mueller. Authorized Translation from the Twenty-Fourth German Edition by E. Cowles Andrus. Published by J. B. Lippincott Company. 543 Pages.

Alimentary Anaphylaxis by Guy Laroche, Charles Richet Fils and Francois Saint-Girons. Translated by Mildred P. Rowe and Albert H. Rowe. Published by University of California Press. 139 Pages. Price $2.00.

A Synopsis of Surgery by Ernest W. Hey Groves. Ninth Edition. Published by William Wood and Company. 676 Pages. Price $5.00.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Volume XXI, 1929. Edited by Mrs. M. H. Mellish, Richard M. Hewitt and Mildred A. Felker. Published by W. B. Saunders Company. 1197 Pages. Price $13.00.

Surgical Diagnosis. Edited by Evarts Ambrose Graham. Volume III and index. Published by W. B. Saunders Company. 1044 Pages. Price $35 for the three volumes and index.

Diseases of the Urinary Tract in Children by Edwin Beer and Abraham Hyman. Published by Paul B. Hoeber Inc. 318 Pages. Price $6.00.